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PHOTOGRAPHIC MAGAZINE

FOUNDED BY EDWARD L. WILSON.

L. W. WILSON, EDITOR.

VOLUME XLI.

NEW YORK:
EDWARD L. WILSON, PUBLISHER,
NO. 289 FOURTH AVENUE
1904.

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January.—"Portrait." By J. C. STRAUSS, St. Louis. Engraved supplements from photographs by LOUIS F. JANSEN, Buffalo; A. N. CAMP, Jamestown, N. Y.; LOUIS SCHREIBER, West Bend, Wis.; H. A. COLLINGS, Holyoke, Mass.; W. H. PARTRIDGE, Brookline, Mass.; GEORGE STECKEL, Los Angeles, Cal.; MOORE and STEPHENSON, Atlanta, Ga., and I. W. TABER, San Francisco, Cal.

February.—"The Débutante," from a platinotype. By OTTO BOYE, San Francisco. Engraved supplements from photographs by MILLS & SON, Providence, R. I.; I. BENJAMIN, Cincinnati; S. H. LIPSHEY, Brooklyn, N. Y.; W. F. CORE, Cincinnati; F. W. RICE, Worcester, Mass.; CH. MEISSER, Berlin, and J. B. SCHRIEVER, Scranton.

March.—"Officers P. A. of A., 1904." By JULIUS C. STRAUSS, St. Louis. Engraved supplements from photographs by ATELIER SOPHIE, Graz, Austria; A. L. JACKSON, Tacoma, Wash.; HOMEIR & CLARK, Richmond, Va.; HARRISON KRIPS, Philadelphia; H. RANDALL, Ann Arbor, Mich.; F. W. RICE, Worcester, Mass., and C. PUYO, Paris.

April.—Frontispiece. By FRED J. FELDMAN, El Paso, Tex. Engraved supplements from photographs by HOLLINGER, New York; CORE, Cincinnati; FRED J. FELDMAN, El Paso, Tex., and J. EDWARD ROSCH, St. Louis.

May.—Frontispiece and engraved supplements from photographs by the OTTO SARONY CO., New York.

June.—"Portrait of a Lady." By GEORGE H. HASTINGS, Boston. Engraved supplements from photographs by GEORGE E. TINGLEY, Mystic, Conn.; GEORGE H. HASTINGS, Boston; the RANDALL STUDIO, New Haven, Conn., and EDDOWES BROS., New York.

July.—Frontispiece and engraved supplements from photographs by the ALLAN-BARKER STUDIO, Newark, N. J.

August.—Frontispiece and engraved supplements from photographs by GUSTAVE LOREY, Albany, N. Y.

September.—Frontispiece. By A. T. PROCTOR, Huntington, W. Va. Engraved supplements from photographs by F. A. FORBER, Aledo, Ill.; the ROY STUDIO, Petersboro, Ont.; S. NEWMAN, New York, and J. M. BANDTEL, Milwaukee, Wis.

October.—Frontispiece. By MORRISON, Chicago. Engraved supplements from photographs by J. W. ROSHON, Harrisburg, Pa.; GODFREY, Chicago; GEORGE W. LEEDS, New York, and H. F. WALBRIDGE, Pittsburg, Pa.

November.—Frontispiece. By J. S. LIVELY, McMinnville, Tenn. Engraved supplemets from photographs by A. N. CAMP, Jamestown, N. Y.; F. M. SOMERS, Cincinnati, O., and DANIEL L. JOHNSON, Oshkosh, Wis.

December.—Frontispiece. By Elias Goldensky, Philadelphia. Engraved supplements from photographs by Elias Goldensky, Philadelphia; J. Edward Rosch, St. Louis, Mo.; S. H. Lifshey, Brooklyn, N. Y., and the Allan-Barker Studio, Newark, N. J.

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PORTRAIT

By J. C. Strauss, St. Louis

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. JANUARY, 1904. No. 565.

COLLODION DRY PLATES. HOW TO MAKE THEM.

BY A. J. JARMAN.

FOR years past there has been a desire on the part of many photographers to use a good collodion dry plate in their every-day business for special purposes. Collodion dry plates have been a commercial article in a small way for the past four years. Sometimes the photographer would like to know how to prepare this class of plate. The present article has been written with the object of giving the necessary instruction.

The first thing to be done is to provide a stock of clean new glass plates of the size required. Any alkaline solution in a warm state may be used for the preliminary cleaning. Half a pound of carbonate of soda in one gallon of hot water will answer the purpose. Wash the plates well in this solution so as to eliminate any grease or dirt; then place them, after rinsing, into a bath composed of either muriatic or sulphuric acid, two ounces to thirty of water, then take the plates and wash them under a stream of running water, having already at hand a solution to form a substratum, made up as follows:

Gelatine	50 grains.
Distilled Water	60 ounces.
Strong Water Ammonia	2 drachms.

Soak the gelatine in thirty ounces of water, melt this by standing the containing vessel in hot water (a stoneware jar is best suited to melt the gelatine in). When the gelatine is melted, stand it aside to cool down, then add the remaining thirty ounces of water, lastly the ammonia. Filter this solution, pour four ounces in a wide-mouthed bottle or a six-ounce graduate, take one of the plates after it has been well rinsed under a faucet, and while still wet pour over it a small quantity of this gelatine substratum. Drain off the excess, then place in a clean rack to dry. Prepare several dozen plates in this manner and stick a small piece of gummed paper on the side of the plate that has not been gelatinized. The plates may be stored away from dust, ready for coating.

The following emulsion must be now prepared: Great care must be exercised in the various operations—the sensitizing, washing, the emulsion, coating, and drying must all be performed in the dark-room. The following may be prepared in ordinary light:

Collodion.

Pyroxyline	80 grains.
Alcohol, sp. gr., 820	5 fl. oz.
Sulphuric Ether, sp. gr., .720	8 fl. oz.
Bromide of Ammonium	56 grains.
Bromide of Cadmium	56 "
Castile Soap	30 "

Shake these well until all are completely dissolved, then prepare in a small glass flask the following: 250 grains of pure nitrate of silver; powdered alcohol, two ounces; distilled water, two drachms.

When dissolved place the collodion in a suitable amber-colored glass-stoppered bottle, repair to the dark room, pour a little of the hot silver solution into the

collodion, shake the bottle well, continue this operation until all the silver solution has been added, allow to stand from ten to twelve hours, then add the following: Sixty grains of the mixed bromides dissolved in one and a half ounces of pure alcohol, add this to the sensitized emulsion, shake well, allow to stand one hour, then pour out this emulsion into a clean amber glass pan, or porcelain, 10 x 12 size, place this in a warm closet to evaporate, of course away from all actinic light. In two hours' time stir up the emulsion with a glass rod, then allow to stand for ten hours. Break up the emulsion into small pieces, scrape the emulsion from every part of the tray and place in a clean stoneware jar three parts filled with clean water; stir occasionally, then change the water three or four times.

When this has been completed make up a solution of

Bichromate of Potash	100 grains.
Distilled Water	12 ounces.

Pour off the water from the emulsion and pour in the bichromate solution. Let the shreds of emulsion remain in this for one hour; then wash well again for one hour. The shreds of emulsion may now be laid out upon clean blotting paper and well pressed to abstract as much water as possible, then laid in a clean tray to become completely dried.

As soon as the drying is complete the shreds must be weighed, a mixture of equal parts of ether and alcohol prepared, and twenty-four grains of the dried shreds added to each ounce of the ether mixture. When the solution is completed it must be filtered through absorbent cotton in a clean glass funnel, with a piece of glass plate placed on top to prevent the evaporation of the ether. When this is complete the sensitized emulsion is ready for use. It will keep well for about two months.

All being ready, take the plates that have been coated with the gelatine substratum, pour on some of the emulsion, allow it to flow completely over the plate, allow the excess of emulsion to flow back into the bottle, rock the plate sideways, backward and forward, then place in a clean rack and dry in a warm place. When they are dried they must be coated over with the following preservative:

Distilled Water	4 ounces.
White Gum Arabic	60 grains.
Tannin	16 "

Dissolve and filter. Take the plates, wet the surface with distilled water, drain, and pour over the sensitized surface the above mixture, return the excess to the graduate without forming air bubbles, place in a rack to dry. The plates are then ready for use. They are best stored in grooved boxes, but they can be packed the same as ordinary gelatine dry plates.

The time of exposure will vary according to the light and size of diaphragm. Great latitude is permissible with these plates. It is better to expose well, because they are well under control in developing. The developing solution is made as follows:

A.

Protosulphate of Iron	1½ ounces.
Water	4½ "

B.

Potassium Oxalate (neutral)	4 ounces.
Water	12 "

Take three and a half fluidounces of the B and pour into it one fluidounce of the A. As soon as the plate has been exposed it may be developed by the above mixture. A 10 per cent. solution of potassium bromide must be kept at hand, so as to use a few drops in case of a long exposure. As soon as development is complete the plate may be fixed in a strong solution of hyposulphite of soda, then carefully washed in running water. It will be advisable to wash the plates in clean water previous to development, so as to get rid of the trace of gum tannin preservative,

This process produces a plate that is a little slow in working. If a more rapid plate is desired, the washing in the bichromate solution must be omitted. The plates will then be 25 per cent. more rapid. When the emulsion has been treated with the bichromate, it may be used in a moist condition by simply coating the plate, and just as soon as the emulsion is set place the plate in the camera and make the exposure. For line and halftone work this answers well, because the shadows remain very clear. A developer

can be made for this special work as follows:

Distilled Water (hot)	8 ounces.
Hydroquinone	40 grains.
Sulphite of Soda	100 "

Allow the above to dissolve, then add

Carbonate of Soda	120 grains.

Dissolve and filter, and when cold it is ready for use. A few drops of the usual bromide solution may be required, but good density may usually be obtained by this developer without resort to intensification. Fix in strong hyposulphite of soda solution, wash the plate for half a minute, then stand aside to dry.

For all ordinary purposes these collodion plates must be varnished with a clear, hard spirit varnish, procurable at any photographic stockhouse.

PROFESSIONAL PORTRAITURE.

BY CHARLES W. HEARN.

IV.

(Continued from page 523, November, 1903.)

In the last paper of this series I mentioned the fact that arrangement is the science of composition, and that all pictures, in order to be artistic, should possess some of the elements of beauty: a good conception, and the carrying out of this conception, in a thoughtful way, in the arrangement. I mentioned also that beauty in arrangement comprises not only the point of interest, but also the artist's conception as it is expressed in the composition, and even at times going so far as to indicate much of the personality and character of the artist himself.

In addition to the above, and anticipating certain views which may be held by expert photographers excelling in technique (a class which includes many of our most able and successful men who have yet given little thought to the art side of photography), I indicated some of the more important of the principles to be acquired by the art student in his training. It is in the application of these principles to his work that the photographer makes progress from the art side. I further said that the technique of the photographer would speedily enable him to apply his art study to advantage in his work, which was said with a full appreciation of the photographer's limitations, as in the use of the lens, which may at once be our master or servant, and the other limitation that we do not deal in color but in monochrome. The opinion was also expressed that for our benefit and more profitable reading some of these art principles would be classified and treated under separate headings. This plan may result in an occasional digression from the direct theme, but still seems to be the most profitable method to follow. We will proceed.

CREATING THE PICTURE.

A serious work of art, a picture which you desire to reproduce with credit to yourself and to your profession, should never be left to the inspiration of the moment or to that last hour when we are "up against it." It may be possible to produce successful pictures under such conditions, in fact the thing has been done, but the chances are that work so produced will fail or be commonplace in its interest, or fall far short of the possibilities of the subject. Except in commercial portraiture, where we have only a few minutes to devote to each sitter, it is always possible to secure an opportunity to become acquainted with the subject before we enter upon the actual making of the picture. By the exercise of tact and a little hard thinking during this preliminary exercise, it is usually possible to make a fairly correct analysis of the personality and pictorial possibilities of the subject. If this important detail receives attention before the sitting begins, you will be able to give your individual conception of the subject and to express in its arrangement and treatment the impression made by this preliminary mental survey. In other words, to the thoughtful worker, the

picture is simply his expression of the personality of the sitter.

During this preliminary exercise, while you are mentally creating the picture by the suggestions which come to you from the subject, let the sitter give, if she will, her "hard-luck story," of how "she never had a good picture taken before;" that she "threw the last lot in the fire," or that "her friends did not know her from her pictures," etc. This exchange of conversation passes the time, and by the use of a little diplomacy on your part you may secure many valuable suggestions from the subject, which will help you to win success in the treatment of the individual case. It is important that you should learn to bear yourself with calmness and dignity in the presence of the sitter. This will serve as an antidote to any possible nervousness and will win confidence in your ability, relieving the subject of any doubt as to your success. With this confidence created, the thought of her previous unsuccessful sittings will disappear and, while you are quietly planning the picture in your mind, the subject will unconsciously aid you toward securing the most pleasing result.

This preliminary conception of the individuality of the sitter is as necessary to your success as is the talk with one's physician, with the occasional questions, relevant or otherwise, which he asks to enable him to diagnose your condition, after which he formulates the course of treatment to be followed or the prescription required by the conditions revealed.

For some years I have felt that it is vitally important that the photographer should watch himself to prevent his own individuality being too strongly expressed in his work—*i. e.*, to the subordination of the personality of the subject. This is especially important in these days, when we see so many portraits which at once strike us as the work of this or that photographer, rather than as so many revelations of the character of their subjects. At the Detroit Convention, Mr. F. Dundas Todd read a paper and exhibited illustrations of his own experience in sitting for various photographers. The portraits exhibited carried out this idea very well, viz., that our photographs are one-third the subject and two-thirds the photographer. If this is true, it will fairly explain why so many of our patrons say that the proofs do not look like them. Let it never be forgotten that our patrons come to us for portraits of themselves, and, if this is not secured, they are largely indifferent as to how much of ourselves there may be in their portraits. An unmistakable illustration of this came to my notice some time ago. A friend of mine possessing considerable personal magnetism was asked to photograph a lady with the foils. In order to get action, gesture, and vivacity in the picture, he made passes at her for a few moments with a cane. While she was full of action the picture was made. It is a strong piece of work, possessing considerable beauty and interest. The actual expression of the photographer's eyes is most positively indicated in the expression of the sitter. This may be an extreme case, but I believe it is liable to occur more or less in many instances under less strenuous circumstances.

Where we have the advantage of previous acquaintance with the subject, or where appointments for sittings are made in advance (which is always extremely desirable), some thought must be given to the treatment of the sitter before her arrival. Some of us who were acquainted with the late Max Platz, of Chicago, and knew him under the skylight, will well remember his habit of mysteriously disappearing when we thought he was nearest, to be later seen emerging from some out-of-the-way corner of the studio where he had absented himelf for a moment to think over the subject and its possibilities. In one of his works, Mr. H. P. Robinson mentioned a similar device, viz., the retirement of the photographer to the dark room for a few minutes before the actual sitting, after the arrival of the sitter in the studio. This dark room, partitioned off from the studio, contained a red-glass window opening into the studio, through which the photographer could observe his sitter. To those unacquainted with the work of Max Platz, I will simply say that his poses, famous even among the leaders of his time, were often thus mapped out beforehand. With the sitter he never hesitated; quick and sure in his every move, he inspired his subjects, calling out

by his own personality their very best efforts. He was a past master in the art of posing women, for which he was especially famous, and it is important to note that this fame rested largely upon the preliminary exercise which I have here emphasized. The painter does not accomplish much in his first sitting unless the circumstances are unusually propitious. It is employed mostly in loose sketches and getting acquainted with his subject. The hint is one of great value to the photographer.

An important element in every pictorial composition is

ORIGINALITY.

There is an old saying that "there is nothing new under the sun"—no thought or idea which has not already been conceived or carried out in some measure. In art originality does not mean that certain principles employed by others should be discarded in our endeavor to secure individuality. Neither does it mean that if in some striking sense our work is produced on lines similar to the work of others we will fail in producing originality on that account. Mr. A may make a specialty in a certain style, Mr. B may specialize on another style, and so on until the whole gamut of possible styles has been taken up and produced by some score or more of photographers, or by as many people as there are styles. Now, is it impossible thereafter for another photographer to be original because the field has been well covered before he was born? What do we observe in the masters of art in this particular? Do Rembrandt, Velasquez, Raphael, and others own their peculiar methods or styles in such a way that no one could paint what they affected and claim originality?

Originality means many things besides what photographers generally impute to the term, which is the general sense of creating a new style of picture that may have been made elsewhere, but which a more capable hand has given a special prominence, so that it is identified with him thereafter.

Our lives or our work may be called original because our personality has caused a certain view to be taken of us, or we have caused to be expressed in our work our personal view of things which, if not commonplace, gives to our work the character of originality.

Poore says, "A wise teacher has said that the quickest road to originality is through the absorption of other men's ideas." They create for you certain other views. Suppose we study good paintings or creditable reproductions of them—not too many at a time. Note the different methods of handling, where they resemble each other, where the masters have handled similar things differently. Certain ideas will come to all of us, and we will immediately commence to receive and later acquire personal impressions different from each other. These impressions may be mere subtleties of lighting; breadth in values or the tones of different pictures will cause different impressions, and the consummation of repeated study of paintings will work in our minds toward the possession of ideas which are more or less original to us. The result will be that our work thereafter will partake of a certain originality, which again will be expressed in our view of our subjects. The benefit derived from these visits to art galleries is greatly enhanced by the presence of kindred spirits, talking over the pictures with others who are at least as capable, as ourselves, if not more capable of appreciating the value of the work studied. The impressions thus gained are always stronger than those which we receive alone.

Some twenty-five years ago this MAGAZINE (then *The Philadelphia Photographer*) published four portraits which were much talked of at the time. They comprised four portraits of the same man by four recognized master photographers in New York, viz., Sarony, Gurney, Fredericks, and Kurtz. These were exceedingly interesting to the craft as showing the originality of the photographers and their methods of treating the subject. Needless to say each one was a good likeness of the subject, and they were all excellent specimens of the portraiture of that day.

Apart from the study of pictures of various subjects, the progressive portraitist can profit by devoting a certain proportion of his leisure to the reading of good liter-

ature. The great masters in prose and poetry have their own individual styles, and it is from an acquaintance and comparison of these different styles of expression that we can learn something of the principles of art. By this exercise the mind is made more susceptible to impressions and enabled to make a more subtle analysis of the sentiment belonging to a subject or theme. I could wish that my readers had heard an address given by Mr. Pirie MacDonald at one of the earlier New England conventions. He was speaking of his fondness for the writings of Gray, and how his copy of Gray had been his constant companion at one time, "was constantly read, well thumbed, and stained with many different kinds of chemicals." He explained that he had learned to love simplicity from the study of Gray, a note which we have all probably recognized in his work in photography, and one of its distinctive charms. It is impossible for the picture-maker to read Gray's "Elegy" without perceiving and delighting in the masterly way with which the poet brings before us one scene after another, unfolding his composition, putting in his characters, and completing the little sketches one after another with consummate skill.

All things which appeal to the eye or to the imagination enlarge your sources of information and tend to that personal rendering or distinctive individual view of men and things upon which originality is based.

What better illustration of this can we have than that given by the Gospels of Matthew, Mark, Luke, and John? These are narrations of certain events, and give four personal and decidedly original views of the life of Christ. From Matthew, whose make-up and training were such as to cause him to emphasize the personality of Christ as the law-giver, we have a narrative which everywhere emphasizes the majesty of the Divine Law. The antithesis of this was John, whose ideals lead him to give special force to Christ's tenderness and compassion, so that he dwells often upon the thought that He is the God of Love.

Originality, however, consists of more than different conceptions of the same thing by different minds. We may succeed in bringing forth the characteristics of the sitter which appeal to us individually, and still obtain commonplace results because we have simply produced those traits which are more noticeable and apparent to the casual observer. This is usually the result of a too hurried or superficial reading of the character of the sitter. We must look deeper and strive to photograph the essential characteristics, sometimes spoken of as the soul of the sitter, but really those permanent and enduring traits of the character upon which his personality is based.

I may even go so far as to say that we may secure a successful composition and receive much credit for the technical and art knowledge displayed in its make-up, and yet fail in originality. In such a case the portrait is after all a complete failure, because we have not produced the beauty of the character of the subject. As men and women go on in the higher walks of life, where some attention is given to the cultivation of the mind, there is a gradual development of nobility and other desirable virtues to be found in them all. It is our business to try and bring out these desirable qualities wherever we find them in our sitters.

(To be continued.)

FROM MY NOTE BOOK.

BY ALEXANDER MACKIE.

Trimming Odd-size Prints. Systematized as it is in business establishments, the trimming of prints, even of unusual dimensions, presents no difficulty. It is simply a matter of using appliances provided for the purpose, but those who only occasionally have to trim a print that cannot be dealt with by using the ordinary cutting shape or trimming board are apt to find more difficulty in making a satisfactory job

of it than might be anticipated, especially if it is required, not only to cut the print itself to size, but to provide "tints" of slightly greater dimensions for its support on the mounting board. To cut ovals and circles naturally requires special apparatus, but the rectangle, the ordinary shape of a print, requires but the simplest of mechanical aid. It is rather a matter of how to set to work about it. A rectangle, as Euclid tells us, has its opposite sides parallel, and its angles right angles; and if the opposite sides be parallel and one of its angles a right angle, the other angles will also be right angles (Euclid again). It is on this fact that the following method is based: First trim the base line of the print, then the top, making the lines parallel by measurement. A perpendicular is then to be set off at one end of the base line, drawing it in pencil, by means of a set square, or, at a pinch, using a sheet of note paper, which is always sufficiently accurately cut. A negative plate should not be used without testing its rectangularity beforehand. After trimming the one end, the other is to be made parallel to it by measurement as in the first instance. There is far less likelihood of error when the parallelism of the opposite side is assured (as it can be by simple measurement) than when an attempt is made to trim each corner successively to a right angle, when, if the set square does not happen to be accurate, or the slightest mistake made in its use, the result is very badly "out."

The Stretching of Wetted Prints. When a print is mounted wet, the mount on drying curls in one particular direction. It may cockle or twist as well, but there is always a distinct curl. This arises from the fact that when paper is wetted it expands, and on drying tries to return to its original dimensions. Being prevented by its adhesion to the mounting board, it pulls the board over in the direction of the contraction, hence the curl. The expansion of paper, however, only takes place to an appreciable extent in one direction —that is, in the width of the original sheet, or, in the case of paper made in continuous length, in the width of the roll, and in that direction the expansion may be far greater than many would surmise. An ordinary bromide print trimmed while dry to 10 x 12 inches, experimentally tested, was found to measure after one minute's soaking in water $10\frac{1}{16} \times 12\frac{7}{16}$ inches. In trimming a print that is to be mounted wet this expansion should be allowed for. If, for instance, a 10 x 12 portrait taken in the usual way to form an upright picture is to be mounted on an ordinary commercial plate-sunk mount having a tint 12 x 14, if it be trimmed with the intention of leaving an equal space, top, bottom, and sides, but without regard to the expansion of the print, and if it happen that the sheet of bromide paper be cut with its longer dimension the width way of the roll, the margin at the sides will be greater than that at top and bottom, which is extremely ugly. In the home making of mounts in which "tints" are used, it is particularly important to regard the direction and stretch of the tint paper and the print. If the print happen to be cut one way of the paper and the tint paper the other, it might possibly occur, if, say, a quarter-inch margin were intended to surround a 10 x 12 print, that, on attempting to mount the print on this previously prepared mount, the print would be found to coincide in dimensions with the tint one way, leaving a half-inch margin the other.

Lime Deposits on Negatives. In the use of some of the modern developing agents, particularly if a carbonate be employed as the alkali, there is a great tendency for a deposit of a calcareous nature to form on the plate. This has its origin in the water used in the mixing of the solutions or in the washing. It is rather difficult to trace the exact course of its formation, and particularly why it should occur, as it sometimes does, in blotches and smears, or why it should show up finger marks. In making a lantern slide the deposit, even when it is a general one, would be noticed at once in its degrading the brilliancy and transparency of the parts that should be approximately clear glass; but one is apt to overlook it in a negative, because the slight degradation is easily attributable to other natural causes. This lime deposit is of a nature that is easily decomposed by an acid, hence if an acid fixing bath be used it does not occur; but

when an acid fixing bath is not used, a very simple remedy exists in using a weak acid bath after fixing. After removal from the fixing bath the negative should be fairly well washed, then immersed in an acid bath—a drachm of hydrochloric acid to 5 ounces of water answers well—for a few seconds only, as the deposit is merely a surface one, and again washed. The effect will be a distinct gain in brilliancy to the negative and the removal of the dull ground-glass effect. Needless to say, an acid bath should not be used on a negative direct from the fixing bath.

A Common Defect in Lenses. It has been pointed out recently that a large proportion of the cheap rapid rectilinear lenses now so extensively used have a defect that the photographer inexperienced in lens matters would have some difficulty in discovering, although he might from time to time notice its effect on his negatives. It arises from the fact that owing to an amount of uncorrected spherical aberration the lens has actually a longer focus when used with a small stop than when used at the full aperture. In practice the effect is that, when, say, a landscape subject is focused with the full aperture and a stop is inserted to bring the planes both before and behind into definition, the plane of actual focus is removed farther away, and in the negative the distance is abnormally sharp and the foreground probably not sufficiently defined. In practice, in using such a lens, when its peculiarity is recognized it is not a difficult matter to make the necessary allowance by focusing an object nearer the camera than that which in the ordinary way would be chosen, or, where the light permits, when a still smaller stop is to be used, to focus with *f*/16. The difference between that and smaller apertures is not appreciable. In copying, when, of course, the camera requires more than the normal extension for the focus of the lens, perhaps the only practical way of using the lens is to focus with the stop to be used or as near that to be used for the exposure as possible. It is not generally known that the best opticians generally correct their lenses so that the maximum of their working qualities is attained with the use of the *f*/16 stop.—*The Photogram.*

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

V. THE EASTER OPPORTUNITY.

AT this season of the year it may safely be taken for granted that the average studio has done its best stroke of business in the holiday trade just past. There will naturally come a short lull, but this should be followed by a steady run of orders during the remaining winter and the early spring months. The Easter season is the next prominent milestone in the photographer's business career, and this offers opportunities for an excellent business if properly made use of. The photographer should begin *now* to load his guns and get a good, clear sight on the Easter trade, with the determination to increase his Easter receipts very materially over that of last year or any previous year. It cannot be done, however, in "any old way," haphazard style, but should be carefully planned out and a logical method adopted, every step in the carrying out of which should lead up to Easter work.

Easter is essentially the children's season, and a special effort ought to be made to connect this thought in the minds of parents with the thought of photographs of the little ones. There are many ways of doing this, but the special way of which I purpose to treat in this article is through newspaper publicity. It will, therefore, be without interest to that portion of the fraternity who do not use this medium unless, of course, they are in that happy frame of mind that is said to precede conversion, in which case their attention may work out profitably to themselves. The suggestions and examples that will follow are not wholly theoretical and visionary,

but are based upon actual and successful experience that has followed their practical use by others in the past.

There are many photographers located in the small cities and in large, scattered communities who are yearly using advertising space in their local papers for the insertion of regular advertisements occupying, say, two- or three-inch single column space in each issue, and others utilizing smaller space for local reading notices and articles to be run in with the general text of the paper, instead of being represented in the advertising columns. This is, in most cases, a good thing to do, but too often fails to show any adequate results, and after a so-called "fair trial" of the plan the photographer gives it up in disgust, and withdraws his name from what is, perhaps, the only medium that would keep him constantly in the minds of every reading family of his town or community.

Is the fault due to the medium itself, or is it partly due to the stale matter and uninteresting manner in which his announcement appears? A great many good men use advertising space in these daily and weekly sheets for the same old announcement, often some characteristic scroll or fac-simile of autograph, followed by address and the statement that certain kinds of photography may be had at their studios. This announcement, appearing day after day, soon fails to create any live impression upon the minds of its readers, whose eyes, if they see it at all, take it in and pass it by without realizing that it has been seen. Its impression was created long ago, and its power to suggest a new one has worn itself out.

Let us revert, for a moment, to the first article published in this series of advertising suggestions, which appears in the September issue of this publication, and let us see what methods would be adopted by Messrs. Pan, Handle & Son, or by H. Elegant Dresser & Co., both of whom represent modern progressive business houses, if they were to deal with this proposition of advertising a photographic studio in one of these daily or weekly newspapers. I think we should find that they would start off with some bright and snappy catch-line calculated to excite the interest of the reader; that they would try to make this catch-line carry the reader's interest down through a short argument, into a personal application that would bring the whole matter directly home to the individual reader; they would try to make it strike the reader as a direct, personal argument why he or she should patronize the studio whose announcement they had just read. The matter would be presented in a concrete form. Ideas would be centralized, one principal thought would be elaborated, and the whole intent of the announcement directed to concentrating upon itself, if only for a moment, the thought of the reader.

I think if either of these firms were to advertise the business of a modern photographic studio they would start in about this time of the year with some such advertisement as the one outlined below. They would be careful to have this announcement printed in such a way as, first, to attract attention; next, they would seek to hold it by a very short, terse statement of fact or belief, and would clinch the argument with the name of the studio and its address:

"A STUNNING PORTRAIT"

means only a platinum print from the A B C Studio. Skill and artistic training in the pose and lighting, combined with

Individual Treatment

in the printing, toning and mounting make the platinum prints of the A B C Studio a synonym for all that is newest, most exclusive and best in modern, up-to-date photography. They will interest you.

A. B. CANDOR

North Main Street

Telephone No. 77 New

A few days or a week after this advertisement appeared I think they would come out with another one something like the following:

IT'S UP
TO YOU!!
if the children haven't
been photographed
lately!!

Is it not
YOUR DUTY
to have it done
NOW?
They have no voice
in the matter!

Childhood is short!
Lifelike portraits of
the little tots are
like good investments—
they

Increase In
VALUE

as time goes on!!!
When you get old and the
children get old, the
pictures will be
PRICELESS!!!

A. B. CANDOR
Main Street

And this would in turn be followed with others of a somewhat similar nature, bearing each time, perhaps, upon a somewhat different feature or working in some different reason why the particular goods of this particular studio should have especial interest or value to that particular class of the community under whose eye the announcement is most likely to come. They will thus keep the public guessing on what is to follow. They will establish an interest in their announcement which would never be excited under the old system of advertising. They will find people beginning to talk about "the stuff that such-and-such a studio is putting out in the papers," and this talk will be followed by visits and orders from people whose shadows had never even darkened their doorways in the past. I make this statement boldly because I believe it is capable of being substantiated by those who have followed this method and who are following it to-day; and if advertising can be made to achieve this end it is fulfilling its mission and accomplishing all that can reasonably be expected of it. It must, however, be direct and personal. It must be aimed *at* the public and not thrown away. It should have that touch of personality that claims attention and holds attention, and if it can be framed with a bit of local color without becoming undignified or slangy, it may often benefit by it. One of its main features, and one to be constantly kept in mind, should be the importance of telling a new story each time; or, if there is no new story to tell, in putting the old story into new language, so that it looks like a new one. It is possible to write the same announcement, using almost identically the same words, in three or four different ways, and with as many different headlines, to attract attention. If a studio has but one single story to tell, it should thus be told. There are none, however who cannot advantageously harp on several different kinds of work and several different styles of mounts or finish, bringing to the attention of the public each week some new point of interest or value, the peculiar merits of which may be told in varying phrases and in attractive display. If this is so, it should not be difficult to lay out a course of action for the immediate future that will bring returns.

The present is essentially the time to begin with a series of such plain, straight, simple talks about our studio as will win confidence in our ability to do well those few things we specially exploit—after a few such changes have been rung, lead up to Easter, and make every word effective.

This kind of advertising will, in some localities, do more and better work at the same cost than circulars, folders, or booklets can do, but in other communities where special announcements are desirable and practicable, it will be found to work admirably in connection with the other lines. The one always helps the other and adds to its pulling power.

In the next paper I will include suggestions for Easter booklets and special announcements.

The special offers to new and old subscribers, on another page of this issue, present attractive combinations which cannot be secured elsewhere. Do not overlook them.

CHANGING PHOTOGRAPHIC PLATES FROM THE DEVELOPING TO THE FIXING BATH WITHOUT RECOURSE TO THE DARK-ROOM.*

BY ARTHUR W. MCCURDY.

1. Let a photographic plate which has been exposed to a camera be developed in the dark-room in the usual way.

2. After development place the plate under a tap of running water until the developer is thoroughly washed off.

2. Open up the dark-room to daylight and place the plate in the fixing bath.

Fixation, without fog, will be complete in about ten or fifteen minutes, according to the strength of the bath used.

I was led to the above experiment by the fact that dealers are using developing machines in the dark-room to develop films because of the increased ease and speed by which films can be handled with the machine. Instead of putting the fixing bath into the machine, they withdraw the film after washing, place it in a tray containing a fixing bath prepared for a great number of films, and immediately proceed to develop a new film.

It at once occurred to me that it would be very important to devise a method of development by which the amateur, who has no dark-room, might be enabled to attain the speed of the dealer who has a dark-room.

The following experiments, *a*, *b*, *c*, led up to *d*, mentioned below.

a. Submit an exposed plate to the action of the developer, wash and fix in the dark-room, and the result will be a negative free from fog.

b. Plunge an exposed plate, without development, into the fixing bath in daylight. After fixation the plate will be clear.

c. Submit an exposed plate to the action of the developer in the dark-room, and in daylight; before washing, plunge it into the fixing bath. The plate will be fogged.

d. Submit an exposed plate to the action of the developer, and, after washing off the developer in the dark-room, plunge the plate into the fixing bath in daylight. The negative will be found free from fog. (See *ante*.)

The developing machine is admirably adapted for just such an experiment. An exposed cartridge can be placed in it in daylight, can be developed in daylight, can be washed in daylight; and in daylight the carrier, black paper, and film can be unrolled, the film torn off from the paper and immersed in the fixing bath, prepared for a number of films, in another dish. In such an experiment I have found the negative to be free from fog. Thorough washing after development, and before exposure to the light, is the *sine qua non*. To obtain thorough washing after development, place the machine under a tap of running water, rotate the film and frequently pour off the water until it runs clear.* Washing should be complete in about two minutes, and the machine be ready for the immediate development of another film.

Thus a method is pointed out by which the amateur without a dark-room may attain the speed of the dealer with a dark-room

Discussion.

MR. U. C. WANNER: The paper of Mr. Arthur W. McCurdy, of Toronto, Canada, on the above subject, suggested the following experiments:

I exposed four Bradley's "extra-speed" plates twenty seconds each at U. S. stop 128 on a dull, cloudy morning in October, between 7.30 and 7.50 o'clock, and a fifth plate two seconds at the same time and stop. The first of the four plates was developed as an overexposed plate with pyrogallic-acid developer, and fixed in the usual way, in the dark.

The second was developed precisely like the first, and when development was completed was thoroughly rinsed under the tap and exposed to gaslight for half an hour and then fixed in light. It was necessary

* A communication to the Photographic Section of the Franklin Institute, republished from the Journal of January 1904.

* In this experiment I used pyrogallic acid developer.

to mark the plates to know which was fixed in the dark and which in the light. The third plate developed was the two-second exposure, treating it for underexposure, after securing all the detail possible and developing the high lights almost to a harshness. I rinsed the plate thoroughly and exposed to gaslight for half an hour, then redeveloped the plate in a solution one-half the strength of the original until the entire surface of the plate was so veiled that little detail could be seen in examination of plate by the ruby lamp. The plate was again thoroughly rinsed and exposed to gaslight for a considerable time, after which it was fixed in light.

The veiling of the film produced a much better printing negative than would have been possible without it in a plate so much underexposed, by giving a better printing density to the entire negative, and especially to the shadows, without affecting the detail to any appreciable extent. This, of course, must be done with considerable care and judgment, as carrying the veiling too far would be at the sacrifice of brilliancy and detail; and again, this might be of use in securing diffusion or indistinctness for art purposes.

The fourth and fifth to be developed were treated precisely as the first and second, and, when development was complete, washed under the tap for a period not exceeding two minutes, after which they were dried in daylight. The fourth was fixed after being exposed to daylight an entire day, and the fifth was fixed before the Section of Photography and Microscopy on October 29, 1903, after two days' exposure to daylight.

There is no apparent difference in the resulting negatives from the plates of same exposure and development, and the underexposure was very materially improved by the heroic treatment given it.

These experiments fully bear out the claims made by Mr. McCurdy, and the conclusion is that a plate or film washed free from the reducing agent used in developing the image may be fixed as well in the light as in the dark and at the convenience of the operator.

ON DISPLAYS.

BY C. A. ZIMMERMAN.

THE quality and the amount of your show or exhibition work depends as much on your own individual taste, attainments, and power, as upon your environment, and upon your clientele, by which I mean, of course, your customers or patrons. The refined or æsthetic show work would be as out of place in a border town as would the painfully crude and literal display of the latter on Fifth Avenue. The mere transposition I have here suggested conveys an object lesson which does not need many more words in exemplification. To secure the appreciation of the refined, the amount of your display cuts no figure. Indeed, if overdone in this respect, it is apt to be a handicap. A pearl or a diamond will draw the eye anywhere, but you will agree that neither will shine particularly if thrown in among a lot of imitations.

The crude show of your humble border-town competitor shines by contrast with the tin-type of the traveling studio wagon, and is entitled to its meed of praise on account of its isolated location and its obvious limitations.

It is vastly different with those living in a closer touch with the advanced taste of the day. The matter of a suitable display of work for exhibition purposes requires no little consideration or taste, and considerable expense if we desire to present our very best. Very few studios are fortunate enough to have a reserve fund of desirable work from which to evolve a suitable and thoroughly satisfactory exhibit. Pictures on hand are usually culls, which, though often used in desperation for lack of better material, should not be used if by so doing you prejudice the really good ones in the balance of the exhibit.

Cabinets, half-cabinets, and cards, as well as the lesser ovals, have been styled "chicken-feed," and when they are *alone*

the prevailing sizes in a studio and they do not contribute materially to a very profitable income, why not conceive or plan your show work in a class or size that you are desirous of putting out. In the first place, such work would be vastly more creditable to the studio, as well as much more remunerative; hence, it is imperative to *have* and *push* such a class. "But," you may ask, "how am I to use such work when 90 per cent. of my trade calls for cabinet and under?" The matter is comparatively easy, and there are several ways to accomplish it. In an earlier paper I have briefly sketched the means by which the cabinet photo was introduced; the sizes and styles must first be made and then shown, and if you have done your part well not much urging will be necessary to make them go. If you do not care to wait until you have a sitter with the desirable characteristics, you may cast about you and go on a "still hunt" for some such, and when found invite them, making, of course, the proper suggestions as to wearing apparel, etc. You can then go ahead and do your prettiest both as to pose and lighting, always bearing in mind the effect you are striving for in the general display. I much prefer, however, to make the selections from salient sitters among my regular patrons. I know of many studios where it is the rule instead of the exception to make the larger negatives as well as the size requested; it will always be found profitable to do this when likely sitters appear, for the added expense is not much, and the result will, nine times out of ten, justify the extra trouble. It is the constant, ceaseless, ever-striving to surpass your best work that will land you at the goal of success, no matter what you undertake. Our business or profession does not differ in that from others, and the methods must often be compared, weighed, and applied.

Now a few words about the display in general. "Concentration," says a humorist, "is better than scatteration," and so will say all the thoughtful ones. This holds true, whether we are dealing with an outside doorway or gallery entrance show, a show upon the studio walls or at a convention. Not only do these remarks apply to the whole exhibit, but to the indivdual parts as well.

Do not design a display that is "spotty," which you are liable to do by an unfortunate arrangement of sizes, large and small, improperly composed; or by injudiciously grouping pictures that agree well in form, but do not harmonize in depth of tone. An agreeable effect should be apparent to the eye of the beholder even when he is so far distant from the grouped exhibit as not to be able to distinguish the individual pictures; this is a very severe test for composition, but such composition is essential if it is desired to make an effective arrangement, as well as one in which the individual pictures may be closely scrutinized for excellence. If the arrangement is framed either as an upright or horizontal oblong, the form can be carried out in the inner grouping, as many smaller oblongs carefully arranged will form a larger one, and while the effect is a little severe it is better to use that principle than to break the arrangement abruptly by the unfortunate introduction of a larger form of subject, unless it be, perhaps, a proportionate oblong which, though larger, will permit its introduction, and thus mosaic in pleasantly. A few general rules can be laid down. It is safe to "mass" the different sizes each by themselves, be they large or small; in this way, if you combine them properly, they will form a harmonious part of the whole. Most of these remarks are governed by the law of harmony rather than by the law of contrast; if you adopt the latter, execute your grouping with knowledge and judgment, always bearing in mind that the sizes must be then combined, according to the humorist's law of "scatteration." I am here confronted with the extreme difficulty of illustrating pictorially the ideas I have been trying to set before you; as a matter of fact, to properly illustrate the subject, exhibition groups would have to be made up and reproduced in half-tone, but it is not possible here where I write to find a selection of subjects suitable and pertinent to the subject under consideration. However, if you have saved the back numbers of your photographic journals which treat of conventions and the various exhibits, you will surely see many which can be taken as model exhibits, though none are to be copied literally.

This would not be possible; for in imitating closely another person's idea of grouping and arrangement you might not be able to complete it by relevant photographic work; hence, you might carry out the letter and entirely miss the spirit. I am inclined to think that all the masters of to-day do not attach the importance it deserves to a perfectly proper exhibit of their show work, apparently leaving it more to chance and fortuitous accident than to careful consideration of the exacting conditions.

The exhibit for the walls of the reception-room needs much care and thought in selection and location. Here, if it is large, the amount of your show is apt to be a handicap as well as at your studio door, and perhaps more so. See that your walls have proper tone or tint; gilt frames add a richness that other kinds do not, and will fit and embellish most any picture. For colored work it is almost imperative that gold be chosen. It is hardly necessary for me to enumerate the tones that are harmonious for frames as well as for pictures contained therein. Do not overload your photos with too massive frames, nor have the frames too near alike in size or style. Locate the principal pictures of the intended group centrally, and as a foil add only such frames as will not detract from the main one either by reason of size or form. Keep the group of frames well together and leave plenty of wall space for breadth and neutralizing effect. If there is one thing that can be said and that will apply to nearly all (I do not say all) it is that *too many* pictures are hung or displayed in studios generally. If there is something more that applies to a good many exhibits, it is that the same pictures are permitted to hang too long without changing. Do you wonder that I started in by saying that a proper show is a matter of expense? I should have said *great* expense at that.—*Northwestern Recorder.*

FACTORIAL DEVELOPMENT.

BY ALFRED WATKINS.

FOLKS are a little apt to confuse the two or three different plans of time development. Simple time development assumes (correctly enough) that if on one occasion you develop to a certain contrast between two stated tones in a subject, you can on another occasion attain exactly the same degree of contrast between similar tones if using the same developer in the same temperature for the same length of time. Even if the subject be a different one, you will know that you will get the same contrast between similar tones.

But factorial development goes a step further. It recognizes that the assumption of the same temperature at all times is an ideal not to be attained, and that changes of temperature greatly alter the speed of development, and, therefore, the steepness of contrast attained in a settled time. It, therefore, provides—not a thermometer, but another kind of -ometer, to make the required allowance for changes of temperature, and, incidentally, of other changes of activity of developer from variation of alkali, etc.

This -ometer is an observation of the time a settled tone (the high light) of the image itself takes to appear, as the rapidity of this is an indication of the speed at which the developer works. The relation between this time and the total time to develop is called the factor. The factor varies for different developers, but not usually for different formulæ of the same developer.

As a matter of simplicity, an exposed tone on the negative itself is taken to make the observation of time of appearance. But I have always pointed out that there is an element of unsoundness in this, although the possible inaccuracy has not been a serious drawback in practice. It assumes that the tone observed shall have received somewhere near a standard amount of exposure; and in practice where, on one hand, the observed tone is exceptionally overexposed (as in the window of an in-

terior), or, on the other hand, exceptionally underexposed (as where there is really no high light in the subject), it is best to make a mental allowance.

There is a plan which removes this slight imperfection; but it has not gained favor as yet. It is to make an -ometer of a separate slip of plate which has received a standard exposure, and with this to test the activity of the developer, either before it is poured on, or to make a test of a portion while the true negative is developing. The total time is found by factor, as before. With this plan, if it can be arranged to insert the plate in the developer in darkness, and cover it up, a "dark-room light" is not wanted, as the observation of the appearance on the slip may be made in moderate light, as gas-light.

I am inclined to think that the "abolishment of the dark-room" will be more satisfactorily attained by some such plan as this than by the several methods of staining developer or plate which are now before the public. These plates are subject to the same difficulties of getting the plate into the dish, and having to provide additional appliances as encumber the timing slip method; but the latter provides by far the most perfect control over results.—*British Journal Almanac*, 1904.

BICHROMATE POISONING.

How to Avoid and Prevent It.

BY A. S. JARMAN.

THE use of bichromate of potash as a sensitizer for carbon tissue, or its combination with albumen for sensitizing zinc plates as used by the photoengraver for line or half-tone work, is largely on the increase, and as there is a hidden danger in its use of becoming poisoned by absorption, it may not be out of place to point out the symptoms, their prevention, and cure.

It does not matter whether the sensitizing salt is bichromate of potash, bichromate of ammonium, or bichromate of soda, the poisonous element being the chromic acid which is in combination with the alkaline base. Poisoning by absorption is very different in its action from taking a bichromate solution internally, but in every use the symptoms are the same in the early stage. The mere washing of the hands in water, or allowing plenty of water to flow over the hands, does not prevent such a powerful poison from being absorbed by the pores of the skin, producing in some cases an almost total loss of the faculties, and in some cases blindness.

The earliest symptoms are itching and a tingling sensation, with great heat upon the tips of the fingers, especially around the nails and quick, extending to the middle joints of the fingers. Upon a close examination it will be found that there are large numbers of small red patches, with small specks or elevations in clusters. In the course of about twenty-four hours these spots become swollen into pustules about the size of a pinhead, filled with a watery fluid. In a short time, which varies with different constitutions—perhaps two or three days—these small blisters join into a larger mass and produce larger blisters, which become partly dried, and then crack. It is from now on that the previous itching ceases and intense pain follows, the skin presenting the appearance of raw beef. If, however, a drying up of the poisoned hands or arms takes place the itching returns in a more intensified form.

Pustules may later form upon different parts of the body, on the neck, down the spine, on the arms, and sometimes on the feet. At this stage there will be a constant feeling of sickness, loss of appetite, thirst, fever, and sleeplessness. The mucous membrane is likely to become inflamed, and severe pain experienced in the throat

and ears. When the poisoning has reached this stage blindness may take place, and the sufferer may entirely lose consciousness and suffer great pain in the bladder and intestines. Such are the symptoms of bichromate poisoning from the mildest to the most severe stages.

The question now presents itself, How can any or all of these effects be prevented? One excellent plan is to dissolve an ounce of white wax in six ounces of sulphuric ether. Pour a small quantity into the palm of one hand, then rub this all over the hands, rubbing it well into the tips of the finger nails, and well into the quick, and then thoroughly all over both hands. Then take a clean dry towel and wipe the hands well. The pores of the skin become filled with the wax, preventing the entry of the bichromate solution. This applies particularly to those engaged in the photoengraving business, where photoetching is carried on in line and half-tone work, whether by zinc or the enamel process on copper, where the hands must be free.

In the sensitizing of carbon tissue, even when the india-rubber gloves are used, it is a safe precaution to wax the hands first, so as to prevent any action of the bichromate in the event of any part of the glove becoming injured, permitting an inflow of the solution.

Assuming that poison has set in, it is an excellent plan to use a mixture of subacetate of lead and acetic acid to bathe the parts affected. This is very painful to use, but it will stop the progress of the disease. The salt of lead appears to be attacked by the chromic acid of the bichromate, forming chromate of lead, an inert substance.

When once the early symptoms of poisoning show themselves strict attention should be given to diet. The patient must abstain from drinking coffee, spirits, or beer; he must eat no potatoes, sugar, or salt fish, and must abandon the use of tobacco. Get all the fresh air possible, and do a great deal of walking. If the above points are strictly attended to when the early stages of poisoning set in, the disease will not spread, but should it be neglected and the more serious stages of the disease become manifest, advice should at one be obtained from a competent physician. In the use of the bichromates it is at all times a good practice to wash the hands in a dilute solution of acetate of lead—half an ounce of acetate of lead to twenty ounces of water. Then rinse the hands well in running water, after which they may be washed in warm water with soap. Never rinse the hands with ammonia after the use of bichromates, as this is not an antidote for bichromate poisoning. On the contrary, it may assist in the absorption of the poison and rapidly produce the effects it is desired to avoid.

Percentage Solutions. A "percentage" solution is one in which the dissolved salt is expressed in parts per 100. There are two ways of doing this:

(1) Weight of salt per 100 parts by weight of solution, the same units of weight being used in each case. This method is only used for solutions handled and sold on a large scale.

(2) Weight of salt per 100 parts by volume of water or other liquid, the units of weight and volume being thus related: The unit of weight (oz. or gm.) is the weight of a unit volume (fl. oz. or c.c.) of water.

In other words the fluidounce must weigh one (solid) ounce; the c.c. must weigh one gramme, and so on.

This method is not accurate except under this condition, but is preferred for its convenience. An example will show how errors may creep in. Suppose we dissolve one ounce (avoirdupois) of any solid in water and make the solution up to ten ounces of water. Is that a 10 per cent. solution? In other words, do ten parts (volumes) contain one part weight? They do and they don't. Obviously 10 fluidounces contain 1 ounce, but 10 minims would not contain 1 gr., because the oz. avoirdupois contains 437.5 gr., while the fluidounce contains 480 minims. Therefore 10 minims contain 437.5 divided by 480, or 0.91 of a gr. As these stock solutions are generally measured out in minims, the avoirdupois ounce must be dissolved in water made up to 4357 minims. This ambiguity cannot exist in the case of the metric system, where the two subdivisions (weight and measure) run similarly.—GEO. E. BROWN.

JOSEPH JEFFERSON

By Louis F. Jansen, Buffalo

By A. N. Camp, Jamestown, N. Y

By Louis Schreiber, West Bend, Wis.

By H. A. Collings, Holyoke, Mass.

By W. H Partridge, Brookline, Mass.

By George Steckel, Los Angeles, Cal.

By Moore & Stephenson, Atlanta, Ga.

By I. W. Taber, San Francisco

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The first of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American Portraitists, based on his experience as a sitter. The following review of the progress of professional portraiture is intended as an introduction to the series, which will enter intimately into the working methods employed in many studios.

IT has been taken for granted that professional photographers are steeped in conventionality. Writers and critics have generally assumed it, readers of papers at photographic societies' meetings have often stated it, and the professionals themselves (with few exceptions) have been content to plead guilty to the impeachment. They have slowly withdrawn themselves from the exhibitions and have admitted that they only make "the usual thing;" yet there are several men in London, some in the provinces, quite a number in Edinburgh and Glasgow, one or two in Ireland, and many in the United States, whose tricks of the studio are modern and individual to themselves; whose conventions are of their own making. The very conditions of professional photography force the successful man to repeat the few mannerisms which are appreciated; and the necessity for planning the business in such a way that most of the work may be done by assistants leads to much cramping. Some have revolted against these conditions, and taken up what Milton Waide, of New York, calls the "one-man" method. Of these I may write in later issues, but at present I wish to take a survey of the ordinary professional field in the English-speaking world.

By W. Scott, Ilkley.

By C. H. Braithwaite, Leeds.

PROFESSIONAL PHOTOGRAPHY OF TWENTY YEARS AGO.

Let me begin with a couple of old-fashioned portraits, made just about twenty years ago. They both look somewhat commonplace to-day, yet each of them in its time was the subject of study and

* Copyright in America by Tennant & Ward, New York; copyright in England by The Photogram, Ltd.

marked a certain amount of progress. They were made in a time and in a district when and where hard white faces were in fashion; and it is well to remember that there are still sitters who object to any shadow, because they say, "I washed my face before I came, and I want to see it white." The portrait by W. Scott is a specimen of good provincial work of its period. At that time large heads were

An early example of the dark background. By the Albany Art Union, U. S. A.

generally charged "extra" on the price-lists, and full-length or three-quarter length was the vogue. This picture was the result of a good deal of care in posing and lighting by a man who was so up-to-date that he made an annual trip (not so common then as now) to London or Paris, to pick up the latest wrinkles. C. H. Braithwaite, who made the second example, was one of the progressive men of his time, one of the first who insisted on moving the sitter rather than the blinds, and who liked to use a narrow shaft of light rather than the general flood which was then very common. Even in this respect he was only one of the many who anticipated some of the schemes of lighting which we are apt to hail as modern novelties. The heavy shadows were introduced purposely to give strength.

The next two examples (p. 27) belong to some ten years later—to 1893, and are by a typical British and a typical American provincial photographer, Charles H. Evans, of Swansea, and E. S. Sterry, of Albany, N. Y. They belong to a time when the background and its relation to the figure was having a great deal of consideration, and in both cases the arrangement was held to be very happy.

The two remaining examples of two years later (1895) illustrate the further development of the background. The McMichael example shows a "plastic" or "alto-relievo" background, an exaggerated imitation of a pebble dashed wall, which became a fashion and had a great vogue on both sides of the Atlantic. Like many other fashions, there was something to justify it. For some portraits the irregular light-and-shade of the plaster surface made a suitable, indefinite setting, and it had at least the advantage over the ordinary background that its details change with every change of lighting. In the hands of a careful man it gave many different effects, and probably it would have been in use to this day but that its very success made it a "craze" for the time, and hence completely unpopular when once the craze died down. The Albany Art Union portrait shows another development of background convention, the success of which was largely due to Pirie MacDonald, then of Albany, now of New York; then a photographer of fair dames, now—"Photographer of MEN." Of Mr. MacDonald

I must say more, anon. The black background portrait, with lighting concentrated upon the face, and often with Egyptian vignetting to cut away the lower part, owed much of its early popularity to its success in Mr. MacDonald's hands at the tion successes. It is interesting to compare this Art Union portrait with the one by E. S. Sterry, for Mr. Sterry was identical with the Art Union, and changed the name of his business some time between these two portraits of 1893 and 1895.

By Chas. H. Evans, Swansea.

By E. S. Sterry, Albany, N. Y.

National Conventions, although I believe it was freely used by the Albany Art Union and one or two other American photographers quite as early as by Mr. MacDonald and before his great exhibi-

THE PLASTIC BACKGROUND.

By McMichael, Buffalo, N. Y.

Next month I hope to bring this little collection of portraits up to date, and in succeeding chapters to deal with certain changes in studio methods. Brief descriptions of some of the most modern studios, with notes on the present methods of operating therein, will be given; and short chats with the proprietors—as Martin Jacolette on diffusion of focus, H. Walter Barnett on the reasons for and increase of convention, Elliott on "at home" portraiture, Richard Speaight on how to pose children, and others.

(To be continued.)

A paper of practical value to all interested in orthochromatic photography is that entitled "A Comparison of Orthochromatic Plates," by A. J. Newton and A. J. Bull, published in *The Photographic Journal* for October, 1903. The paper, which is illustrated with a colored reproduction of the spectrum and four half-tone plates, shows the color sensitiveness of forty-one different brands of dry and wet plates, gelatine and collodion. The only American plates in the list are the Kodak N. C. Film, Kodoid Film, and Seed's L. Ortho plate.

THE PICTURE IN THE ADVERTISEMENT.

BY J. ELLSWORTH GROSS.

This interesting article is republished by permission from *Profitable Advertising*, edited and published by Kate E. Griswold, Boston, at $2 per year. Mr. Gross is well known as the leading specialist in his line, and his article should prove suggestive to our readers as showing the advantages of photography in the illustration of advertising matter.—Editor W. P. M.

ADVERTISING is the power in the world of business. The result is, it has increased business, which assures its great value. This fact is no longer considered a venture nor a fancy, and the investigative man analyzes the make-up of advertisements, and finds that this enlarged trade is made through illustrations and printing. He again finds that the heart and soul of an advertisement "that tells the whole story" at a glance is the picture. In infancy we began to read the story by the picture.

"A child reads Mother Goose from the illustrations."

A child who does not know his letters will read every page of "Mother Goose" aloud from the illustrations—so we glance over the morning papers, and the illustrations tell us what many columns of reading would.

How shall this picture information be made? The clever artist draws many things, good and bad. The kodak amateur does not distort everything; but, on the whole, they are not as reliable as an object before a first-class lens of a photographer's camera. With a man of artistic and business appreciation to pose them—yes, pose the beautiful woman, the pretty child, or the plain machine.

WHAT IS NEEDED.

The ad-getter must have in his hands an influence or charm in the way of a good photograph to present to his customer—one that attracts the eye at once, and this is becoming easier to do as business men are fast learning to appreciate that the *good* pictures are the only ones—for wooden horses, wooden men, and wax women have had their day of posing.

Mrs. Jarley's wax figure models are not the ones the artistic photographer is looking for, nor the business man for his calendar or advertisements.

As models, art has done its share to help discard old fossils of these kinds.

Nature has given us too many beautiful subjects, and we should not cling to the grotesque.

Photography and business have joined a partnership of congeniality, progressiveness, and merit.

WHERE PHOTOGRAPHY WINS.

The clever idealization of the article advertised, and the adaptation of the idea to the intelligent requirements of the particular object can best be done by photography, and the means which brings the business and the photography to a focus is the idea born in the brain of the advertising man.

There is a certain element of interest in the picture of a real person that is not presented by a drawing—hence, photographs of a figure, whether a man, woman, or child, have a living interest which is impossible for an artist to draw, no matter how great his skill.

PLENTY OF GOOD MODELS.

As to good models being scarce, this is no more true for advertising photography than for models to show off the gowns in our best dry-goods houses. You may trust the photographer for the models. When the advertising manager goes to him as he should, full of the thought he wants to be produced for some especial line, the photographer grasps the business scheme, and calls in the models that he may produce the idea in a photograph that has eliminated from the orginal thought and the study of the active advertiser In his study the advertiser has perfected the business idea, and the photographer puts life, snap, energy, and fascination into his plan : he adds the breath of life to it.

"The beautiful woman and——

—— The pretty child."

POWER OF PHOTOGRAPHS.

Photographic illustrations are used largely for magazine advertisements, posters, calendars, and catalogues ; in fact, all advertising purposes, for they are not only an eye-catcher, but should accurately and nicely illustrate that which you would have made plainer to the public than words can do. They speak to all ages of years and intelligence, to all nationalities, and compel the memory to retain them by repeated impressions.

Clean and uplifting pictures should be

the only ones produced or asked for. The "simple and artistic" are the words first uttered upon receiving some new and really attractive advertisement.

"Pictures of real people have a living interest."

To educate the youth by frequenting them with good ideas of good materials is bending the twig early in life to know of the articles to be sold and of the means of illustrating them.

SEEN EVERYWHERE.

A calendar of beautiful heads or an announcement of some soap or extract with a cheery, winsome face sent over the world as an advertisement are often seen tacked to the walls of the most luxurious homes, and again adorn the shacks of the frontier, and fairly cover the walls of some cottages and college men's and girls' rooms. Only dust and dirt force them to give their space to a cleaner and new piece of art.

What you want the world to know and admire, tell the children; they will tell others and grow up with the idea firmly fixed in their minds until they have children of their own to tell. Secure the right, title, and good will of the young, and do this in the most pleasing way.

The advertisement of beauty will be a joy forever if it is practical and artistic, and will create a desire to have the article that is advertised. The advertising picture must lift the unknown to the known, and be an illustration that illustrates.

To produce this kind of picture is not a difficult matter, providing the photographic artist is fertile in ideas and has a thorough grasp of the situation. It is merely a question of knowing what to do and how to do it, and the rest is detail.

"What you want the world to know, tell the children."

WHAT BRIGHT MEN ARE SAYING.

REMEMBER first, last, and always that the photographer must study and practice business methods just as much as he practices the technique of his profession. Yea, even more, for the average photographer has often a predisposition toward photography and has often a positive aversion to business.

Business elements should not absorb or swamp the artistic sensibilities, but must be present as the motive power under which, if properly directed, the artistic qualities of the studio are to be made to improve and grow in value year by year. We are never to surrender our artistic ideals, but always do the kind of business that will bring money returns.—W. I. SCANDLIN.

THERE is more attention being given to photographic literature and text-books than ever before, and there are more magazines and books being read than ever before. The result is that better minds are finding a field for work, and the average reader is the one who is able to profit by the study and experiments of these trained minds.

Every photographer should take just as many good magazines as he or she can afford and find time to read, and now is the time to look over the list of magazines and decide for yourself whether you are satisfied with the reading you are doing at present, and whether you are not able, by the exercise of a little energy, to do more reading, and thus get much more good than you have been getting, by subscribing to more magazines. Do not let any of your subscriptions lapse unless you intend to supply its place by the subscription to some magazine or magazines. Give this matter prompt attention, for this is the season for renewing subscriptions.—F. E. GATCHEL.

THE reception-room is where a man meets his trade and makes his business; a little diplomacy, polite manners and even temper shown here, sometimes in the face of adverse circumstances, will do as much to establish the photographer in the good opinion of his customers as he can ever expect to gain through a high grade of workmanship. You may produce a photograph which from a professional standpoint is perfect in every detail, and still have the customer who will find fault with it, whether from an honest opinion or on general principles is a question. Whatever diplomacy may mean to the politician or the statesman, boiled down for the use of the photographer it is a simple combination of good manners and good horse sense. Let us learn to apply it more freely in our business, and I think we will be better off. —R. A. MACFARLANE.

SPECIAL NOTICE. A very large number of subscriptions expire with this issue of the MAGAZINE, and we would request the readers to renew their subscriptions as early in the month as possible, so as to make certain that they will be on the list when the February number is issued. It is also a great saving to us in office work when a subscription is renewed promptly, because a renewal takes but a couple of minutes of a clerk's time, whereas dropping a subscription and re-entering it is responsible for at least ten minutes. Seeing that hundreds of letters reach our office every day during January, our readers can see for themselves how much we appreciate the careful reader who is prompt in his remittance.—F. DUNDAS TODD.

To be really strong in maintaining fair prices you must be content to start in a small way, make a reputation for good work, always uniform, and turned out with promptitude. Deal only with good business firms who pay up promptly, and give them business-like terms. Don't be too craving for business unless it is good business. Advertise by every possible means that you do good work, and in the end business will come to you instead of your having to go after it. You can then demand your own prices, and you will get them if they are fair. The good business man—the successful business man—is never a cut-price man. You may point out to me instances where the contrary seems to be the case, for instance, in some big retail stores which appear to have been built up upon the principle of small profits and quick returns, but if you are able to penetrate deeper in-

to their methods you will soon see that the secret of their success has been good system. They have ascertained the minimum profit at which business can be conducted, and how much they can save by good management and cash transactions, so that in this way they get the pull over competitors who never know just how they stand. The moral then is obvious: that you must shape your businesss methods so that waste and loss are reduced to a minimum, and thus turn out at a fair price better work than your neighbor and with greater punctuality. —Editor *Penrose's Process Work.*

NEWS AND NOTES.

A new edition of *How to Make Photographs in Fifteen Colors*, a practical handbook to the use of Elliott's carbon tissues, has just been issued by G. Gennert, 24 East Thirteenth street, New York. The booklet is well written, and offers much useful information about this method for producing artistic and permanent photographs. Free on application to the publisher.

Penrose's Process Year-book for 1903–04 has made its appearance, and surpasses its predecessors in elaborateness of illustration and wealth of information. The volume is one-third more bulky than last year's edition, and contains selected examples of almost every known reproduction process, the work of over a hundred different engraving firms. Although compiled for illustrators and engravers, the book is one full of interest to all engaged in photographic work, and should not be overlooked by progressive photographers [$1.50: Tennant & Ward, New York].

The Photographers' Association of California met on the 14th inst. to consider the question of permanent quarters for the Association in San Francisco. We have no news up to the time of closing for press as to the outcome of the discussion. Mr. M. Morrison has resigned the office of Vice-president on account of his departure for Europe. Mr. C. H. Anderson was elected to fill the vacancy. We note with pleasure that the monthly meetings of the Association are enlivened by social features, such as instrumental music, etc. The California Association is certainly making a splendid record, which we hope will be well sustained.

A Colored or Non-Actinic Developer. Herr Funger, in *Photo Mitteilungen*, recommends an addition of phenolphtalein and rosolic acid to the metol hydroquinone developer in order to protect the plate from the action of daylight. To each litre of the metol-hydroquinone developer there is added 10 c.c. of 10 per cent. solution of phenolphtalein in alcohol, and 0.5 gramme of rosolic acid. When the solution is, as ordinarily, made up of two liquids, the phenolphtalein should be added to the metol hydroquinone solution, and the rosolic acid to the alkaline solution. A similar proposal has been made before, but in a somewhat different way. An acid fixing bath is required in order to clear the film.

Too Short Focal Length. The tendency of the present time is to work with lenses of rather short focal length, this being probably an outcome of the great covering power and high price of the modern anastigmats. In treating at some length on this subject and on the question of depth of definition in the field as affected by focal length, Herr W. Schmidt insists on the need of a reasonably long focus lens for ordinary landscape work, and he points out that although a lens having a focal length no longer than the major side of the plate may serve for interiors and architectural work, it will not give generally acceptable portraits or landscapes, owing to the near point of sight required for producing a true effect to the eye.

Messrs. G. Cramer and J. C. Strauss, of St. Louis, have been elected members of the Royal Photographic Society of Great Britain.

PHOTOGRAPHY AT THE ST. LOUIS EXPOSITION.

THE following letter speaks for itself, and should be carefully read by those who desire to exhibit their photographic work at the St. Louis Exposition.

The invitation mentioned in the letter as having failed to bring response was read at the last national convention, but the Association failed to appoint a committee to take charge of the matter. Mr. J. George Nussbaumer, of Buffalo, was appointed juror to serve on the Committee of Selection, and there the matter apparently ended. It is regrettable, indeed, that this neglect has placed American photography at a serious disadvantage as far as adequate representation at the World's Fair is concerned.—Editor W. P. M.

ST. LOUIS, Jan. 15, 1904.

TO THE EDITOR: WILSON'S
PHOTOGRAPHIC MAGAZINE, New York.

Dear Sir: Under date of July 29, 1903, invitations were extended by this department to seven photographic societies to name one member each of a proposed Committee of Review and Selection. The duties contemplated for this committee were to examine and grade photographs offered for exhibition. Inasmuch as the majority of the societies have failed to respond to the invitation extended to them, it becomes necessary to change the programme, and new regulations have been formulated, a copy of which is enclosed herewith.

I will be pleased to have you give publicity to these regulations in the interests of the photographic fraternity. Very truly yours, J. A. OCKERSON,
Chief, Department of Liberal Arts.

Regulations governing the admission of photographs as exhibits in the Universal Exposition to be held at St. Louis, April 30 to December 1, 1904.

That portion of circular dated July 29, 1903 (page 342, August, 1903, of this MAGAZINE), relating to the admission of photographs is hereby rescinded.

The following information is submitted for the guidance of photographers who contemplate entering photographs as exhibits in the Universal Exposition which opens in St. Louis April, 30, 1904.

First: Application for exhibit space should be made without delay on forms or blanks furnished by this office. Full information should be given as to number, character, and size of pictures to be submitted, together with a sketch showing proposed arrangement on walls, folding screens, or in albums.

Second: All pictures offered must be mounted, matted, and suitably framed or otherwise properly prepared for ready installation in the space devoted to photographs, the owner assuming all risk and expense of shipments to and from the Exposition, as well as the installation and care of same while on exhibition.

Third: All photographs accepted as exhibits will be subject to review by an International Jury of Awards, composed of members from each of the several countries making photographic displays.

Fourth: All photographs should be shipped so as to reach the Exposition not later than April 1, 1904. Shipping labels will be sent to accepted exhibitors on application to this department.

The railways have granted free return of goods on payment of full rate to the Exposition, provided shipments are made in accordance with adopted regulations.

Fifth: Freight and express charges and all charges appertaining to the transportation of photographs must be fully prepaid at the point of shipment, and the goods delivered at the Liberal Arts Palace clear of all charges of every description incident to transportation.

Sixth: Photographs offered as exhibits must be the individual work of the exhibitor named in formal application for space.

Seventh: There is no charge for exhibit space, and suitable screen walls will be constructed in the Liberal Arts Palace on which photographs may be hung.

Eighth: Special adornment of space or extra lighting will be at the expense of the respective exhibitors requiring same.

Ninth: General rules governing exhibits, their installation, the system of awards, shipping regulations, etc., will be furnished on application to this department. JOHN A. OCKERSON,
Chief, Department of Liberal Arts.

A SCOT'S IMPRESSIONS OF PHOTOGRAPHY IN AMERICA.

BY W. E. DRUMMOND YOUNG.

In speaking of American methods in photography, I must begin with a little explanation. The United States is a very big place, and although I covered about 6000 miles, that means very little of the United States. Then, again, things change so rapidly there, that what may have been the universal custom a year ago, might not be known now: so you will understand I am only going to tell you of what I saw while in America; and I must add I know very little of British methods in photography, having only had experience of one situation in this country, and any comparison unfavorable to photography this side of the water is against my own work rather. If I have only known one situation here, the United States made up for it; but there, within limits, it is a recommendation to have knocked around. "The Rolling Stone Gathers no Moss" does not hold good in the West. In the first five months in Chicago I was in four situations. My first was as a carbon printer. It took me some time to recognize the difference between working in the two countries. It seemed the same, only more work, longer hours, and no Saturday afternoon. The operator was a really smart man, who had read a great deal about carbon printing, "always the greatest authority," kept me going making up formulæ for my work, which did not always work. I got back at him one day.

At this period I was intensely British, and always in mentioning a size gave the biggest size first—5 x 4, and not, as they did, 4 x 5. The operator chaffed me about this one day. "Well," I said, "we do things very quickly at home, and if you give a man smallest dimensions first, he would have the stuff cut too small." I guess that is pretty good, Young," he replied, with a grin.

The carbons are all single transfer on celluloid. The prints had just to be perfect. It was here that I first saw the notice, "Call for your proofs the day after tomorrow." The Yankees are hustlers, but they must have a night shift to have proofs finished like that; but the proofs turned out to be untouched and untoned silver prints, generally printed on what they called "seconds," a cheaper grade of paper. Occasionally the operator, in looking over the negatives before sending them up to the printing-room, would pick out the best negative of a sitter and put a little touching on it, but of the crudest description; the proofs were printed lightly, and looked wonderfully well, and then the saving in retouching was immense, as only negatives for which there were actual orders were retouched. An American photographer never forgets that it is the prints he gives his customers. Everything is done to make his negative perfect. Nothing is left to be done on the print; so you find in a place employing three retouchers, one girl does the spotting and sending out of the prints, and other things besides.

The scraper is used to a great extent. My first effort with it was to set a boy's eye straight. It was a full-length cabinet figure, perfect but for the boy having moved his eyes. I got them all right, but fell on the next negative I tackled. It was very strong in color, and wherever I scraped it turned blue, the color seeming to be on the surface. This did not show until the negative was printing, and then it appeared in black spots. But, to get to American methods, it seemed to me that everything was done to make the negative as near perfection as the proprietor of the business knew, and then it was varnished. A great deal of the retouching is piecework, and a really smart retoucher conld make, working hard, from 20 to 25 dollars a week, provided he got the work. I think American retouching better on the average than what I have seen here. A more open style of touch is practised. Of course you meet with a great deal of over-

* This paper, read before the Edinburgh Photographic Society, will doubtless interest our readers as an intelligent appreciation of American photographic methods by a photographer trained in the more conservative methods prevalent in Great Britain.

done work. I remember they used to say of one man in Chicago, that he kept one neck and bust with which he supplied his lady sitters who sat in evening dress. There certainly was a strong family resemblance between the necks of all ladies photographed by him; but, taking American portraits of ladies all through, most of them seem to be in evening dress. One man I was with described it as "neglitay."

Photographers keep a thing they call a "drape," and the draping in the resulting photograph is often quite classical. At times the display of neck and shoulders is immense.

All the time I was in America I never saw a double transfer carbon. I did one myself one day just as a novelty. As already mentioned, all prints were single transfer. One man for whom I worked made negatives for carbon with a mirror. His work for many years had been entirely carbon. Latterly he took up platinum. I may say here that this man knew more of photography than any man I came across in the United States. He was an Englishman, very artistic, and with a thorough knowledge of his business right through every detail. His people, I believe, were photographers in England. I put in a month with him, and then had to quit, business was so quiet, but in that month I learned quite a lot. All his platinum paper and sensitized tissues were kept in an ice chest. The negatives were developed with a nonstaining developer, and so were easily judged in printing. Each one was built up to a standard density, with sheets of ground celluloid in the printing frame, and when filled in were placed on a framework on wheels and run out to print. All the printer had to do then was to watch the one test frame and run them in again when it was deep enough. The prints were cabinet or C. D. V. and one size of celluloid held one cabinet or two C. D.V.'s. By developing in a series of grooved tanks it was possible to get through a very big batch of prints in a comparatively short time. I did not find any good class place mounting their platinums solid; they were merely touched at the corners or round the edge, and the paper mostly used was B. B. grade and some C. C. The prints were always dried flat between blotters, and in the dry slight mounting, none of the velvety quality was lost. The climate is a great help in printing; even in Chicago, which they call damp, I have seen a man cut up paper for a day's printing and keep it in a loose-fitting cardboard box. I cannot imagine anybody doing that here and producing a decent print from it. The light, too, in winter is so much better, and it seemed to me that I could get a much better print from a thin negative than I can here.

The most popular printing paper was a matte collodion, toned first in gold and then in platinum. It is a very fine paper without a doubt, and giving beautifully rich prints if carefully toned. For the double toning it is printed till it looks the right depth by strong transmitted light. I had not worked this paper at all, so when I got a situation in Tennessee as printer I had to find out all about it. I went up to the Aristotype Company's Office in Chicago and explained my position. The manager treated me with great courtesy, and at once introduced me to one of their demonstrators, who, he said, would give me any information I required. The demonstrator, I found, was a very nice fellow. "Well," he said, "I guess the best thing I can do for you is to print and tone some paper; and as I have some paper here that a man has complained of, when can you meet me, and we will go to some gallery and have a go at it?" We arranged for the afternoon, and went up to a place that ran about five studios. Our friend was evidently well known, as we went right through to the printing-room without challenge. Mr. H. (the demonstrator) explaining what he wanted, the printer told him to help himself to a large pile of negatives. He filled out about thirty frames, and while watching them Mr. H. asked if they were doing much. "Oh! 1500 prints in the last two days." Next question was, "Where's George?" "Down toning—been toning since yesterday afternoon." I asked how many printers they had, and found there were three. All the printing was done in the sun behind ground glass. They did not need any artificial heat. A dripping wet negative was brought up and an electric fan turned on; it was dry in ten minutes. I thought it was real handy, but

too hot for comfort—more like stoking. Later on I had the same conditions to work under. The number of prints printed struck me as being a lot; but in mentioning it to a man I met in Tennessee, he said, "That ain't much of a picture mill," and gave some figures that were away up. Of course I did not see the place he mentioned. But to get back to our demonstration. On leaving, Mr. H. explained that whenever he wanted to test paper, the gallery which we had just left was one of two or three where he could always get the use of negatives. When we got back to the office I saw one of the quickest and finest tonings I have seen. Every action was explained—the theory of toning and the effect the tone would have in the gold bath upon the tone of the platinum bath; where it was necessary to wash well, and why. That was what impressed me. He did not say, "Do this," but told me why I should do it. The paper being quite satisfactory, Mr. H. said he would go along to the man who had sent it back and have a look through his place and find out the trouble. I think the American photographers owe the Aristotype Company a debt of gratitude. The company has made it their business to see that everybody buying their goods would get the best possible results with them, and I think the high quality of the average print in America is in a great measure due to the system of demonstration. When I was in a place in Iowa we had some trouble with a batch of paper. I forget what it was now; however, we wrote to Chicago complaining, and sending some of the paper back. Next day we got a wire in reply saying, "Have sent on nearest demonstrator and fresh paper." The demonstrator came in next day after. He had covered over three hundred miles, travelling all night. By this time we had got the new paper working right. It seemed almost funny the way he strolled in in the morning. When we showed him the good prints, he said, "I guess those are all right; must have been a bit old, that other paper. Where did you buy it?" and getting a reply, added, "There is a train back in a quarter of an hour; I guess I can catch it," and off he went back 300 miles to take up his round again. But if we had not had things right he would have stayed there until they were right. A great deal more work is expected from a man over there. In one place I was in there was just the proprietor and myself and a girl in the reception-room. We did not work on Sunday, but we turned out from 500 to 700 prints a week, aristo and platinotype. I did the retouching, most of the developing and the platinum printing, helped with the aristo printing, some of the sitters, the toning and mounting. The retouching ranged from cabinet full length to 10 x 8 heads. With a good light, a soft pencil, and sitting well back from the negative, it was possible to get through about eighteen mixed negatives between 8 A.M. and 6 P.M., thirty minutes for dinner. From Monday till Thursday forenoon there was nothing but retouching; the developing then was done before breakfast. The boss started printing Thursday morning. I chipped in later. We toned Friday afternoon and mounted at night, finishing up any time between 10 P.M. and 1 A.M., generally about midnight. The people called for their prints on Saturday. We kept open an hour or two in the evening. The rule there in paying was a dollar at time of sitting and the balance when you got the prints. I could not retouch at that rate now; it needs constant practice and the most favorable conditions to come up to that turn-out.

In Upper Michigan, where I was for over a year, we had not anything like the rush, although the same system was gone through. About 500 prints was our biggest output in one week; but we kept open on Sunday—at first all day; later, we, the four photographers in the town, came to an agreement to shut Sunday forenoon. This three of us kept till I left. The man who did not keep it was the only American photographer of the four. I had the pleasure of going around one Sunday forenoon and giving him a piece of my mind; but he did not count much; he cut prices, and did poor work. He had the laugh at us just about Christmas. My partner had bought some blocks for advertising purposes, one a crude sketch representing an enlarged framed photograph, a couple of figures, and a dog barking and jumping up to the picture. There were some words below explaining that the

dog was barking with delight at recognizing his master's portrait, then followed our advertisement for enlarging for Christmas. Well next week our American friend had in his advertisement, beginning as follows: "When you get an enlargement done at my place, your dog will not rudely bark at it, but will wag his tail with genuine pleasure," and so on.

This being a mining town, the foreign element predominated. There was every nation in Europe and a good few from Asia. I think I was the only Scotsman except a doctor, and he was Canadian—that sounds a bit Irish, I am afraid. Italians were in the majority, and I never had one sit without bargaining over the price; and no matter how little English he had, he could always say, "Too moosh," "too moosh." I found them honest, with two exceptions, and they had been a long time in America.

In most galleries they had a straight price for a dozen cabinets of one position, and this was increased by mounting on special mounts. We made matte cabinets for four dollars, and glossy for three dollars (glossy was chloride paper), fifty cents extra for two positions. The matte prints got as high as six dollars by mounting on different mounts. First thing when I got to the gallery on Sunday at one o'clock there would be what looked like two families, and perhaps one or two odd people or single lots. They all simply tumbled in behind me, and then the rush began. When I was new to the game I tried to accommodate everyone and hurried to attend to all, but soon found it was best to ignore everything but the first man who spoke; they were in no hurry, it was like going to the theatre for them. First question was, "What you charge for take our pitch?" You went over the prices and mounts, although the man knew them; then what seemed like a violent quarrel took place in Italian, and just as you expected bloodshed the spokesman would turn around and say quietly, "Too moosh." I never took any notice of this, and he did not seem to expect it, because he would immediately ask, "How moosh for seex like this, seex like that, and seex like that." You gave him a price, when he would ask, "What you take for"—and would mention so many of the two families, so many of himself alone, and some of the families separate—each arrangement would be for different mounts, so that if you were not careful you would get caught in some of your former quotations, and no explanations would avail. When the price was settled the name and dollar had to be got. The dollar was the easier; if the name was not Italian, it was Finnish or Swede or Polish; some American names were not much better. My biggest Sunday's work was seventeen sittings, and each one had two or three positions, and fully half of them had to be bargained with. Considering it was two and a half hours' work single-handed, it was hustling. I do not want to make out that this was all artistic photography, because a large number of the sitters insisted on having completely in view, two feet, two hands, and five fingers on each hand, and the French people thought a shadow was a black mark. But it was good, clean work, results technically above the average piece of the same class here. Now and again we had a good subject and we did not let them pass.

Everybody in America gets photographed frequently, once a year, and many much oftener. A surprising thing is the way in which a man who has really no artistic sense picks up the nack of making almost artistic work; they seem to be able to get the thing down to a few rules and apply them. I do not think enough can be said in praise of their conventions. Almost every State has one. I, unfortunately, was only able to attend one, and it was not of outstanding importance. It was when I was in Michigan, and the three photographers already mentioned planned to go together, two others from a neighboring town joining us. Unfortunately I have lost the programme, but it was all through a business meeting of professional photographers, and was well worth the 200 miles travel to attend. There was an exhibition and some awards. One, I remember, was a bronze statuette awarded for a certain class of work, another award went to the man whose work showed the greatest improvement since the meeting of the previous year. We had a criticism of many of the works by the principal of the big art school. Many of

the points criticised were obvious, but here and there one got a hint, and every line that was bad the reason of its badness was given and where it could have been improved. All work criticised was by permission of the exhibitor. A feature, or rather characteristic of American photographers, and, in fact, business men in general, that impressed me was their readiness to talk of their business and eagerness to hear what you had to say. There seemed to be no fear in them of giving away their business; the idea seemed to be that in a conversation the smartest man got the most benefit, and I did not find any man admit that he was a noodle, but he was always ready to admit that his work could be better, and eagerly on the lookout for any hint that would help him and a willingness to try any new idea. We had some very interesting lighting demonstrations in one of the principal studios in the town. The one I went to was a very clever show (if one can call it so). The studio was of the single slant form, very much like H. P. Robinson's studio of the future, except that the glass sloped in slightly. We were shown all forms of lighting and some very beautiful effects. As the majority of studios in the United States are of the single slant pattern, it was very useful to a large number of men there. Once or twice one of those present would ask the demonstrator to produce a certain form of lighting, which he did. Fortunately the subject was a man who would photograph in almost any light. I don't think I heard the word "art" mentioned, but most of the effects were artistic. I was describing this to a photographer friend of mine in town. He stopped me with the question, "Do you mean to say that there were photographers in the same town at the demonstration?" "Yes, of course," I said; "it was a State convention." "I would like to see a photographer do that here," was his reply. Among other things there was a talk on business methods for photographers, the usual demonstration of printing paper, a lecture on artistic lighting accompanied by sketches, and many other items that I have forgotten. In connection with the conventions all the railroads and hotels gave special rates. We paid full single fare going, and on presenting our membership card going back for one-third. I do not think we had any receptions or excursions. One night the dealers in town took one of the theatres for the members. I think that was the only entertainment. That performance was a funny thing for me. I had been to the oculist's in the forenoon, and he had dropped some atropin into my eyes; the consequence was I could not get the stage in focus, and for every actor on the stage I saw three. Although the town is famous for its beer, I can assure you that the atropin was entirely to blame for the optical effect.

The American photographer strikes one when you meet him at a convention as an enthusiastic, jolly good fellow, friendly, and ready to do a good turn if in his power. I can speak of kindness and consideration from many of them, my first few months out being anything but a bed of roses. Any place that I called in looking for work I received every courtesy; in fact, some of them were too polite, and raised hopes for which there were no grounds. I do not think as a rule the American photographer has such an all-around knowledge of his business as a man here. That may be because I had gone through a regular apprenticeship, and was accustomed to almost every kind of work. So to get into a place using at most two kinds of printing paper bought in cut sizes, it seemed a little simple; but then I do not know a man who can make more of a little knowledge than your average American. You have only to note the number of men who change their profession two or three times when comparatively well on in years, and not changing because of failure, but because they think they can do even better in another line. He is intensely practical, and apt to specialize in one or two lines. Anything that has no direct connection with what he is actually doing is ignored. His carbon printing is all single transfer, because double transfer would not be so practical in the handling of big quantities and working on celluloid and rough surfaces. Except in one place, all carbon portraits that I saw turned out were reversed, and in that excepted place they had reversed negatives that were no good (from my point of view) for anything else. It is perhaps one or two individual details

of that sort, and maybe methods of working, that did not agree with my notions that gave me this impression, because I saw much good work, both artistically and technically from all parts of the country. Among a certain set their portraits must always be "snappy" in character. I must say personally I like a clean, bright print, but those "snappy" portraits were a bit too much, nothing restful, very useful as detective portraits for the police, but they will soon, if they are not now, be very much the exception. One thing that is good in a way for our American friend is the constant demand for something new; he does not get a chance to get fixed much on one style of work, and he cannot live on a reputation without doing a good deal to keep it up.

This brings me to another point. It has been said that American photographs are not permanent. I was speaking to a printer in Chicago and I said, "Your prints cannot be permanent with the washing you give them." "What does that matter?" he said, "the folks who get them stick them in an album and forget all about them in a week, and six months later they come back and resit." Now, I don't think you can blame the photographer for this sentiment. He is not in the business for his health, as they say, and if people do not want lasting prints, why should he bother? I have seen places where the negatives even were not kept after a few months. But that is changing rapidly; there is a big wave of artistic feeling sweeping the country, and photographers are getting the full benefit of it, and with the production of more artistic results grows the desire to preserve them, and so more consideration as to the permanence of the printing process. Platinum and carbon were coming more and more into use at the time of my visit. And now I repeat that the few impressions I have tried to convey to you were gathered while earning my living in America; they are what I have seen and experienced in a varied climate. I have photographed lumber jacks in the woods when it was ten and twenty degrees below zero, and have retouched and printed in a melting condition with the mercury at 102 degrees in the shade. Some of you present may take a trip to America, and from any point of view I do not think it would be without profit; but you must not go with my impressions, even if you agree with them just now, as everything that struck me might be absolutely different, in support of which I would like to quote a few lines from a book on America, *The Land of Contrasts*, a Briton's view of his American kin, by James Fullerton Muirhead, author of the United States *Baedeker*. The Americans themselves admit the absolute fairness of this work. In the first paragraph of the author's note he says:—

"The book was almost wholly written in what leisure I could find for it in 1895 and 1896. The footnotes added on my third visit to the country (1898) while I was seeing the chapters through the press, have at least this significance, that they show how rapidly things change in the Land of Contrasts."

And further on—

"It is important also to remember that the generalizations of this book apply in very few cases to the whole extent of the United States. I shall be quite contented if any one section of the country thinks that I cannot mean it in such and such assertion, provided it allows that the cap fits some other portion of the great community."

In fact, gentlemen, this idea is not only the keynote of Mr. Muirhead's excellent work, but of the experience which I have, I hope fairly, if feebly, endeavored to place before you, for it is a fact which permeates literature, language and social customs in America, that the words, the habits, and the ideas which obtain to-day are abandoned to-morrow, and are absolutely obsolete next week. Even in this there are exceptions.

Color for Applying to Bright Machinery Before Photographing. Mix white lead with turpentine to the consistence of thin cream, with sufficient lampblack to form a light slate color, and then add one-sixth the bulk of japanners' gold size. Paint the machine over with this. After negative has been made, the color can be quickly removed with a wad of cotton waste moistened with turpentine or benzine.

WINTER TROUBLES AND WINTER PRECAUTIONS.

By the time this issue is in the hands of readers we shall be well in the year 1904, and up to the present—that is, up to the time of writing—we have had no severe wintry weather. Those who have been looking forward to a time when they could obtain snow and frost pictures are still awaiting the opportunity. Still, there is ample time for us to have what is sometimes described as a "good old-fashioned winter." Now a good old-fashioned winter brings with it considerable inconvenience, and to none, perhaps, greater than to photographers, particularly if they are attended with a frozen water supply, for example.

Although up to the present there has been no really inclement weather, yet it has been cold enough to occasion inconvenience, and sometimes trouble, the cause of which has been unsuspected by some whose practical acquaintance with photography is somewhat limited. Indeed, we know of more than one instance of trouble, due entirely to depressed temperature, the cause of which was actually unrealized by the photographers, yet they were professionals, though, we may add, not with a very extended experience in the business. The trouble here referred to was at first attributed to the quality of the plates; they were charged with being slow, though they were of a very quick brand; also that they would not yield sufficient printing density. In each case the difficulty, when the cause was explained, was got over by warming the developing solutions and the dishes to about 65° or 70° F., as well as the dark-room itself. It is commonly recommended at this season to warm the developer up to this temperature, but a little consideration will show that the advantage gained is quickly discounted if the temperature of the room itself is not much above 40°, and this is frequently the case with some dark-rooms. Under such conditions the solutions rapidly cool, and the advantages gained at first become next to *nil* before the development is complete, if it is at all long, and in the case of underexposure it may necessarily be so.

When there are no other means of heating the room, a paraffin stove becomes very convenient. One with a four, or four and-a-half-inch wick will keep a good sized dark-room at a genial temperature and the solutions in good working order during the daytime, and a common paraffin lamp with an inch wick will do the same during the night with the door shut, notwithstanding that the outside temperature may be at freezing point. Objection is sometimes raised to paraffin stoves on account of smell. This objection becomes groundless, as it does with oil lanterns, if the wicks be kept nicely trimmed and the outsides of the reservoirs perfectly clean. Although the fumes from a neglected oil-stove are unpleasant to smell, they, unlike those from coke or gas, have no injurious action on photographic operations.

Depression of temperature retards chemical action, and has a marvellous effect on the fixation of both negatives and prints. They fix much slower than when the solutions are warmer, but in the case of negatives the effect can be seen, and if care be taken that the plate remains in the fixing-bath for double the time it took to remove the bromide of silver, not much trouble will be met with as regards that operation. But if not, and the negative has to be intensified, stains may well be anticipated. In the case of paper prints there is no such guide as to complete fixation and the conversion of the hypo-silver salts into the freely soluble condition, and, as a result, yellow stains frequently make their appearance when the prints are finished, owing to their being insufficiently fixed. At this season of the year, if the fixing-bath is anything under 30° and the room is cold, at least double the usual time in the solution should be allowed to ensure that the prints are perfectly fixed, and the hypo-salts of silver brought into the freely soluble state necessary for their entire removal. Even when this is done there comes the question of washing.

When the water is very cold it has not the same solvent action on the hypo in the films, whether plates or paper; hence, unless the washing waters are warmed, a longer time should be given to the wash-

ing; but in the majority of cases this is not done. Indeed, when the operation is entrusted solely to inexperienced lads and girls it is often curtailed on account of the unpleasantness of having to be continually dabbling in abnormally cold water. Where the albumen or the collodio-chloride processes are employed this is not so likely to be the case as with them. Warmer or even hot water may be employed for the washing. This treatment the majority of gelatin papers will not stand.

Having alluded to some of the troubles that winter cold may bring about, there is perhaps a still greater one that may beset the professional worker—namely, a frozen water supply. This, in the greater number of cases, may be avoided were a few timely precautions taken; yet they are too often neglected until too late. There is now sold by most of the large ironmongers a thick felt, made specially for binding round exposed water-pipes. This felt is an excellent non-conductor of heat, and affords a good protection to the pipes. In place of that the hay bands, with which trusses of hay are bound together, if wound round the pipes answers well. When the service pipe from the street main is laid near the surface of the ground, as is too often the case, six inches of stable manure laid on the ground above it will prevent the frost from reaching the pipe. Another good way of preventing the water from freezing in the pipes is to leave the taps continually dribbling. This, of course, the water companies would object to if they knew it; but they need not be consulted on the subject. If the water is paid for by meter they raise no objection, of course, as the slight extra cost to the consumer is sometimes amply compensated for in the avoidance of a frozen-up supply, and, perhaps, burst pipes. If perchance for want of due precautions being taken, the pipes get frozen, they should, without delay, be examined from end to end to see if there are bursts. If there are, they will be seen as enlargements of the pipe at those places, and the services of a plumber should be sought at once to do the necessary repairs. If this be neglected, it may result in the flooding of the place when a thaw sets in, and possibly much damage being done.—*British Journal of Photography.*

PHOTOGRAPHY AS A PROFESSION.*

BY O. W. COLE.

Do we, as photographers, regard our profession as a profession in the same way and to the same extent that the doctor, the lawyer, or even the dentist does? I think you will agree with me, gentlemen, that we do not. Are we as proud of our profession as the M.D. or attorney-at-law? Again I answer "No." Of course, some of us have not achieved enough to be proud of. I have seen work in nearly every town of any size that I do not see how the maker of it could feel proud of his productions; in fact I should not want to own that I had made such stuff, and yet, in large bold letters of gilt were the words emblazoned "Art Gallery." No wonder the artist with the brush did not want to hear such stuff called art, and hence it took the oil painters many years to even admit that a photograph might be a work of art. Under such conditions could you blame him? No.

Now, to get back to the subject, why do not photographers, as a body, recognize photography as a profession? Why do they place so little esteem upon it and have so little regard for it? Answer: It is because they have put so little into it.

A great many photographers blundered into the profession; they did not ever choose it for a life's work, but mere circumstances caused many of them to take it up temporarily, and then circumstances over which they had no control kept them at it.

Now, listen to me! Imagine a physician practicing medicine and surgery, or

* An address before the Virginia and North Carolina Convention, 1903.

a lawyer practicing law, who, just owing to circumstances, blundered into his profession. You ask the doctor or lawyer how he came to be in his profession, and he will tell you, "I went to college four, five, or six years, then stood a rigid examination, passed, got my sheepskin, put out my shingle, and now I am a doctor or lawyer," as the case may be. Ask him if he respects his profession, and he will reply, "Yes, sir; I do." You see, he first *chose* his profession for his life's work, and spent years to fit and qualify himself for that work. No wonder he honors his calling; it cost him something, and he stands by his profession, and so they had laws passed to compel others who would choose the same profession to also stand a like examination, and so he, too, honors the profession. It cost him something, and he feels proud to say, "I am a lawyer or a doctor."

Why should not photographers enter their life work through the same gateway? First, by acquiring a college education and then being made to pass a rigid examination before being allowed to practice photography? Here let me make a prophecy that inside of the next decade that will be the state of things, and in the near future we fellows who blundered into the profession may be granted a permit to follow the procession, but the next generation of photographers will be protected by having to pass an examination before entering the grand profession of photography. Until this is done, and until men recognize the magnitude of photography and the possibilities of the art, it will never be properly respected, and how can we expect the public to respect it more than we ourselves do? Until we respect ourselves we can scarcely expect others to respect us. Now, we need to think more highly of our profession; in fact, we need to build ourselves up until we can constantly think more of ourselves.

A few years ago a young man entered into a studio in our South land to learn the art and science of photography. His good mother, who lived in a rural district and had seen but little of photographers except a "quack" occasionally, thought that her son was taking a step downward, and accordingly she wrote a warm letter to the photographer, and demanded that he send her son home at once, as she wanted him to choose a more honorable and elevating calling than that of photography. She had gotten the idea that, of course, all photographers were like those she chanced to know, and who could blame the mother for wanting her boy to aspire to something higher and nobler than they had.

Here is a lesson for us. Let us look to our own personal appearance; in fact, I think we might stop for a moment and consider the personnel of the photographer. His individuality and his personal appearance have much to do with his standing in a community, and his standing has much to do with his success. The photographer who keeps himself and his studio neat and clean, dresses well, looks after every detail, keeps only the best company, and makes something over and above a bare living will surely stand higher than the untidy and careless slop-shop worker who has always a gang of loafers around his place of business. His patrons will be of his own kind, and *yours* will be of *your* kind. Now, what kind of patrons do you want? Do you want the best? (They usually pay the best.) If so, do your best to *be* the best.

Some will ask, "Why go to all this trouble and expense to get a college education just to be a photographer?" I will answer that by asking why should a doctor or lawyer first acquire an education before beginning his profession? Is our profession of less merit than his that we should begin without preparation? And they spend years of hard study and research in order to become qualified to successfully conduct their business. It is just as essential to our success as it is to theirs. Higher mathematics may not be needed in your business, but it is as important in developing your mental faculties and training your mind as exercise would be to develop your muscles. The athlete must continually practice if he would be perfect, but it is needless for me to follow this thought further. I will leave it to you to think about. I may not help you, but I do hope to be able to help your sons and daughters who may enter the profession of photography to recognize the importance of laying well the foundation on which to build

if they would be successful artists in this educational twentieth century in which we live. I wish that every one here might have the privilege of coming in touch with the men who attend the national conventions, men of culture, men of learning, men of brains; then you, with myself, would see the importance of being qualified, in the highest sense of the term, to become the more successful.

THE NECESSITY FOR CHOICE IN ORTHOCHROMATICS.

BY T. THORNE BAKER, F.C.S.

IT is now a thing of the past to point out the advantages of and necessity for orthochromatic methods in photography. Practically all the leading plate-makers manufacture color-sensitive plates, each brand of which is good in its own particular way. But each make varies from the others nevertheless, and must necessarily always do so, until such time as all orthochromatic plates are perfect; there are several different ideas, also, about what should constitute a "perfect" color-sensitive plate, and therefore it may safely be said that the various makes will always differ in some ways.

The greatest difference, and that which will be most readily recognized, is that existing between so-called "ortho" or "isochromatic" plates and "panchromatic" plates. The majority of orthochromatic plates on the market are sensitized for yellow and yellowish-green, but not for red, while a panchromatic plate, if a good one, should be sensitized for green, yellow, orange, and red.

The following will make things still clearer: If we take four ordinary dry plates, and bathe them, one in a solution of auracin, one in erythrosin, one in glycerine red, and the other in chlorophyll, we shall find that the first is specially sensitive to green, the second to yellow, and the third to orange, and the fourth to red. Now each one of these plates might in the ordinary course of events be called orthochromatic, and although each one is particularly adaptable to a certain specific class of work, *no* one could be used advantageously in place of any other, while a true panchromatic plate could be used in place of all or any.

A consideration of this will make it at once evident that it is a matter of importance to *choose* discreetly when engaging in orthochromatics. It is not only necessary to be careful in the choice of a subject, but also in selecting the plates to be used for that subject *and* in selecting the screen or filter to be used with that plate. If a panchromatic plate be always employed, and an absolute filter with it, everything will be right, no matter what is the subject. But here again comes a further limitation, for a correct filter can very easily be an incorrect one! A filter which, for daylight, will give a perfect rendering of all pure colors with a certain plate will not do so in a yellow illumination, or, indeed, in any light except daylight. Then, as we know, daylight is constantly varying, and to how great an extent can be readily proved by exposing one make of orthochromatic plate in a spectroscope camera on a misty day, say, and on a bright sunshiny day.

It must not be thought from this, that to successfully photograph, one must have several brands of color-sensitive plates and several screens or light filters. I have endeavored to point out the thing from a radical, and therefore severe, point of view, but now propose to indicate one or two ways in which a wise choice of plate, filter, and illumination will lead to results which are obviously worthy of the greater care expended upon them.

To treat of every imaginable subject would clearly be out of the question, but of common subjects we may take three main classes, as follows: (1) landscapes in which there are no spring or autumn tints; (2) landscapes containing new or faded foliage, and portraits; (3) ruins, interiors, and pictures.

When dealing with landscapes which are chiefly characterized by greens and yellows,

an ordinary orthochromatic plate is all that can be desired. By the word "ordinary" I mean plates which are yellow sensitive and green sensitive incidentally. Our German cousins frequently group all color-sensitive plates into those of the eosin type, the erythrosin type, and the cyanin type, and so on. Eosin sensitizes for greenish-yellow—chiefly green; erythrosin sensitizes for yellowish-green—chiefly yellow; cyanin for red, etc. Most makes of English orthochromatic plates would be said to be of the erythrosin type, and it is this class to which reference was above made.

A good orthochromatic plate will be slightly yellow in color, as an examination in daylight will show; this yellowness absorbs much of the bluish-violet rays which strike the plates, dampening actinism, and thus even without a screen they will give a truer rendering of a colored subject than will an ordinary uncorrected plate.

The average summer landscape will require, then, a plate of the erythrosin type and a yellowish-green filter or screen. The necessity for the green element in the filter I will proceed to explain. The object of having a color-sensitive plate is to allow each color to make an impression on the plate, and obviously one color must not make more impression for light of a given luminosity than another. If we photograph two patches of paint side by side, one green and the other blue, each of equal visual intensity, then each should come out in the negative with equal density. But if a plate be used for the exposure which is very sensitive to blue rays, and insensitive to green rays, in our negative we should get a dense patch for the blue, and no impression for the green. If, on the other hand, the plate were slightly sensitive to green rays, we should get a dense patch as before for the blue, and a slight patch representing the green photographed.

Suppose that now we place a piece of green glass in front of the lens, so that exposure is considerably increased. In this way the blue patch being "damped," will take say six times as long to make the same impression upon the plate as it did before. But the green patch, as it reflects only green light into the lens, would *not* be damped, and would therefore have six times as long to act as it did in the first exposure. In six times that period, however, it may have had time to make the same impression on the plate as the damped blue patch, and hence on development we should get the two patches of equal intensity.

It will not now be a difficult matter to understand that if our orthochromatic plate lacks in green sensitiveness (as practically *all* makes do), we must introduce green into the screen to compensate for it, as this greenness will cause the other colors to require a long exposure, and thus enable the green rays to produce comparatively as much effect as any other rays.

For landscape subjects, then, which contain no reds of any importance, I recommend for plates of erythrosin type a filter such as can be made by staining up a fixed-out lantern plate in the following solution:

Naphthol, yellow, . . .	30 grains.
Naphthol, green, . . .	1 grain.
Water, ...	10 ounces.

(The screen should increase exposure about six times.)

For landscapes which contain buildings, ruins, and so forth, or in which the reddish-orange tints of faded leaves appear, and also for portrait work, it is essential to choose a plate sensitive to orange rays, as well as yellow and green, and of course a filter, which will enable all these rays when of similar visual brightness to produce equal effects upon the plate. An aqueous solution of rhodamin, or glycin-red, would work well for bathing plates for this work, but personally I should choose a panchromatic plate, as, indeed, it is best throughout, save for the inconvenience of its manipulation. An orange screen for such work can be made by staining the plain gelatin-coated glass with a solution of:

Naphthol, yellow, . . .	30 grains.
Titan, scarlet, ...	1 grain.
Naphthol, green, . . .	1 grain.
Water, ...	10 ounces.

(The screen should increase exposure eight to fifteen times.)

It will be noticed that here, again, allowance has been made for the most invariable lack of efficient green sensitiveness.

We come now to the third class of sub-

ject, and one which is perhaps the most important of all. What colored screen shall I use with a panchromatic plate, when photographing pictures? is a weighty question, and more important than one usually thinks, for this reason. If we are going to use a color-sensitive plate, and correct it by means of a filter, we may as well get it *right*. An orthochromatic plate and yellow screen may be used for photographing stained glass windows in interiors, pictures, and so on, and a very marked difference from ordinary results obtained; but if these marked differences do not constitute an absolutely correct color rendering, why bother about it at all?

Some such apparatus as the Chapman Jones plate tester, or, better still, a spectroscopic camera, is invaluable to find out just how the relative sensitiveness for different colors is in a given plate. But if these are not procurable, then the wisest course is to take some reliable panchromatic plate, and with it photograph a color-test card, such as is provided with Hübl's "Dreifarbenphotographie," * through a liquid filter. For example, let us focus up the test card through the cell, filled with water, and placed either before or behind the lens; in three stop-cock burettes we must have three solutions, one of a yellow dye, one of a green dye, and one of a red dye. Small quantities of each are added to the water in the cell, and varied until we find that all colors of equal visual intensity are represented in the negative with equal density. If the pictures are to be photographed by, say, magnesium light, then our tests must be made in the same illumination in order to be absolute. The liquid in the cell is then ready for use *in* the cell, or the relative quantities of dyes noted and a staining bath made up for a dry filter.

It is in such ways as these that what I have ventured to term "absolute" results are made, and unless absolutely correct, it hardly seems worth while using color-sensitive plates. In conclusion, therefore, it may be stated that *choice* of screen or color filter is every bit as essential as choice of subject and choice of plate.—*The Amateur Photographer.*

THE INDIANA ASSOCIATION.

CROWN POINT, INDIANA.

AT a meeting of the Executive Board of the Indiana Association of Photographers, with all members present, the usual preliminary plans were made for the next convention, to be held at Winona Lake, June 27 to July 1st inclusive; and now, since there is always a certain amount of routine work necessary in getting the ball rolling, we are proceeding to reach you all, sailing under the photographic flag, by means of this letter, to determine the contents of which is quite a quandary to know just what to say and how to say it, in order that it may carry with it the weight fully intended. Yet the sum and substance of the whole matter is an appeal to begin something for the next convention. We feel that it would be reflecting on the intelligence of the Indiana photographers to proceed to enlarge on the importance of affiliating with photographic societies, and that the membership of Indiana's proud society knows its duty; so we say, in one strong earnest appeal, members do your duty, and those who are not members, for the sake of your business, your patrons, and last but not least, your purse, brush up and mix with the element that is creating the standard of photography to-day.

The purport of this letter is to remind you that time is rolling swiftly on, and, ere you have become aware of the fact, your time will be too short to enable you to get up just what you would like, so we most earnestly urge that you "strike from the shoulder" at once and honor your board with the very best showing possible for the convention of 1904, and whatever you do, prepare something; the effort in so doing will more than repay you. You may rest assured, also, that your humble servants, the board that never sleeps, are leaving no stone unturned in making this the banner convention of them all. Trusting that this has made something of an impression, and that you all appreciate the fact that

* Der Dreifarbendruck. (Pub.) Knapp, Halle.

we need and fully expect the hearty co-operation of every one of you, and assuring you that you get, for the asking, most cheerfully, any information desired.

Sincerely yours,

W. E. VILMER,
Secretary.

The following is the list of awards to be made at this convention:

Grand Prize, selected (Indiana Association). Six pictures thirteen inches or larger.

Genre Class. One picture, no restriction as to size. Subject to be chosen by the photographer, the title to be appropriately inscribed on the picture. First award, gold medal; second award, silver medal.

Miniature Class. Twelve pictures, four inches or under. First award, gold medal; second award, silver medal; third award, bronze medal. Markings in this class to be on a basis of twenty points each for lighting, posing, chemical effect, printing, and miniature effects.

Class A. Six panels, eight inches or larger. First award, gold medal; second award, silver medal.

Class B. Twelve cabinets, oval or square. First award, silver medal; second award, bronze medal.

Class C. Open to photographers in towns of 5000 or under. Twelve pictures, any size. First award, silver medal; second award, bronze medal.

Class D. Open to photographers in towns of 3000 or under. Six pictures, any size. First award, silver medal; second award, bronze medal.

The officers of the Indiana Association are as follows: President, Geo. J. Parrot, Fort Wayne, Ind.; First Vice-president, V. B. Hardy, Frankfort, Ind.; Second Vice-president, George E. Houser, Warsaw, Ind.; Secretary, W. E. Vilmer, Crown Point, Ind.; Treasurer, J. Bourgholtzer, Washington, Ind.

PHOTOGRAPHERS' ASSOCIATION OF WISCONSIN.

The Executive Committee of the P. A. of W. have decided to hold the next convention at Milwaukee, April 27, 28, and 29, 1904. Mr. J. M. Bandtel, the popular Secretary of this Association, is now located at 479 Eleventh Street, Milwaukee, and will be pleased to send the circular of information to those interested relative to the coming convention.

ITEMS OF INTEREST.

The photographer who is interested in critical or careful focusing should not overlook the Focusing Magnifier announced by Taylor, Taylor & Hobson, Ltd. This instrument is designed for the examination of the image formed on the focusing screen of the camera. It draws out for use like a telescope, closes for compactness, and is provided with a screw adjustment for individual use. It shows the same beauty of workmanship and convenience in handling so noticeable in the Cooke anastigmats made by this house, and should prove a useful helper in many branches of photographic work.

Varnish for Bromides. It has become the custom of several expert workers to varnish bromides used for exhibition work. The advantage of so doing, I learn, is to obtain a juciness of the shadows, which is commonly regarded as sole the prerogative of carbon or platinum. I suspect that the following formula will have the desired effect. As a paper varnish I know it to be an efficient preparation, and it would be interesting if any readers of these lines cared to record their experience with it as a varnish for bromides:

Borax	15	grains.
Pale Yellow Shellac	30	"
Carbonate of Soda	5	"
Glycerine.	15	minims.
Water	½	ounce.

Boil these together, cool, and add alcohol, ½ ounce. Put in some pumice powder, shake up, and allow to stand two or three days, and filter.—*Down Town Topics.*

A representative collection of portraits by Elias Goldensky, of Philadelphia, is tastefully reproduced in *The Camera*, of that city, dated December.

The mercury vapor electric lamp of Peter Cooper Hewitt is rapidly coming into popular use in the Eastern cities. It is appearing in New York factories and composing-rooms these days, and over in Boston it is rapidly coming into popular use.

In Boston it is being used in warehouses, machine shops, factories, printing offices, and places where great accuracy of sight is required. The lamp is much used by photographers, who say they can take pictures by it much more rapidly than they can by daylight.

One of the advantages of the light is that it makes use of a current of high voltage, yet gives a steady illumination, where with another system the effect would be almost blinding. On account of its absence of red rays it is easy on the eyes, and is well adapted to the use of those who work at night, provided their tasks have nothing to do with fine discriminations between colors.

In principle the Hewitt light is very simple. The electric currents flow into a sealed tube in which there is a mercurial vapor. At either end of this tube are electrodes, positive and negative. When a high current is turned on the resistance is broken down by the presence of the vapor, and the tube is filled with light.—*The American Inventor.*

A very interesting booklet entitled *Profitable Professions* reaches our table from the American School of Art and Photography, Scranton, Pa. We have already recommended the instruction offered by this institution to our readers, and would suggest that those interested would send for a copy of *Profitable Professions*, which gives full information regarding the different branches of photography taught by the school, which is under the management of Mr. J. B. Schriever, a photographer well known to the profession by his work.

Photography at the World's Fair, St. Louis. At the Chicago Exposition of 1893 hand cameras were allowed within the grounds on the payment of a fee of $1 a day to the official photographer, who issued and sold these daily permits to amateurs. At the St. Louis Fair this summer the photographic concessionair will have nothing to do with issuing permits for cameras. Up to date all cameras without tripods have been allowed within the grounds without charge. Whether this will continue when the Exposition is open lies with the Division of Concessions and Admissions. It is probable that a fee will be charged during the Exposition period, although this has not yet been definitely decided. Hand cameras may be carried into the fair grounds without charge, the size 4 x 5 being the limit, and no tripods will be allowed without a permit from the Division of Concessions and Admissions. The minor rules regarding the use of cameras have not been definitely set forth as yet.

The Missouri Amateur Camera Club is a new organization in St. Louis comprising some seventy odd active workers, possessing their own club-room, adorned with several hundred examples of photography on the wall. The club extends a cordial invitation to all photographers visiting the World's Fair city in 1904 to give them a call at their headquarters at the Allen Building, No. 1 North Broadway.

A series of novel and altogether delightful cover designs by photography is being published as a special feature of *The Valley Magazine* of St. Louis. The designs comprise Lytrit portraits of beautiful women, by J. C. Strauss, done in masterly and happy style. The portraitist in search of inspiration should not miss them. [Valley Publishing Co., St. Louis. $1 per year.]

The death of Mr. John Henry Brown at Hove, England, which took place December 19th, says *Nature*, recalls the little-known fact that as the inventor of the iris diaphragm he has laid the scientific world under a considerable obligation. In the early seventies Mr. Brown took his home-made model to Smith & Beck, the predecessors of the well-known firm of opticians in Cornhill. Although roughly constructed, this model differed in no important detail from the type of apparatus at present in the market. As he did not patent the little contrivance, he reaped no

pecuniary reward for his ingenuity. Although frail in body and physically somewhat infirm, Mr. Brown, by indomitable energy, made and retained for many years a large practice as a dental surgeon. He was a Fellow of the Royal Astronomical Society, and died, aged sixty-seven years, much respected.

EDITOR'S TABLE.

WE are glad to be able to report that Mr. JOHN CARBUTT, after a severe illness lasting six weeks, recently returned from a short holiday in Jamaica, completely restored to his usual health and vigor.

THE demand for HYATT'S *New General Catalogue*, No. 16, has been so great that the publisher advises that the edition cannot hold out much longer. The catalogue is by all odds the most comprehensive professional reference-book yet published, and should find an honored place on the bookshelf of every progressive photographer. Ten cents sent to Dept. W., H. A. HYATT, 318 North Eighth St., St. Louis, will secure a copy while the supply lasts. Delay may mean disappointment.

IN spite of the unusually heavy work of the past few weeks we made time to give a practical trial to the new Cramer Trichromatic Plate, recently issued from the G. CRAMER DRY PLATE WORKS, St. Louis. The subjects were a Christmas tree against an Oriental rug, dull red color, and a Japanese vase of bronze red, containing dried brown grasses. The amount of detail and the splendid range of gradation secured in the negatives gave ample proof of the red sensitiveness of the Trichromatic.

THE special offers to new and old subscribers given on another page proved so acceptable to the readers of our December issue that we have repeated them in this issue. Those who have not yet renewed their subscriptions should not overlook these offers, as they will not appear again. They bring no profit to us, but are made simply to secure the prompt renewal of our expired subscriptions, and to further increase our list of readers.

THE last number of the *Aristo Eagle* contains a remarkable collection of portraits of celebrities from negatives by PACH BROS., of New York. Incidentally that veteran photographer Mr. G. W. PACH says: "Collodio-carbon is the finest printing paper yet placed in the hands of photographers," a well-deserved testimonial to this wonderful paper, which has given uniform satisfaction since its first introduction.

THE complete edition of the *British Journal Almanac* for 1904, 25,000 copies, was sold out before publication. Fortunately, American readers need not suffer by this popularity, as the American agent, G. GENNERT, reports that he still has a few unsold copies The *Almanac* is more interestingly varied in its information this year than ever before, and the advertisement pages, as usual, offer a complete photographic education. Price, paper cover, 50 cents, postage when mailed, 20 cents extra.

THE popularity of Ozotype shows steady increase in this country, especially among professional workers who seek a distinctive printing method which will yield artistic and permanent prints in color. Readers who are unacquainted with Ozotype and its possibilities should send for the circular of information issued by the American agent, G. MURPHY, Inc., 57 East Ninth St., New York.

PHOTOGRAPHERS who have not realized the profitable possibilities of a practical flashlight machine for portraiture should send to Mr. S. S. PINGREE, 206 North Main St., St. Louis, for a copy of his *Flash Light Talk*, one of the best and most helpful publications on this subject. It may be had free for the asking by those who will mention this MAGAZINE.

THE new booklet of Edinol information, issued by the Farbenfabriken of ELBERFELD CO., 40 Stone St., New York, contains many new formulæ and demonstrations of the usefulness of this developer and acetone-sulphite.

WHEN so conservative a man as ALFRED STIEGLITZ gives his unqualified indorsement to one brand of plates above all others, the testimonial is one which should attract attention. See the Seed advertisement in this issue.

THE new insert of COLLINS mounts given among our advertising pages should be seen by photographers seeking for attractive mounts for spring trade. In spite of keen competition and lower prices, the COLLINS mounts grow steadily in favor and reputation as their undoubted superiority deserves.

THE DEBUTANTÉ

Otto Boyé, San Francisco

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. FEBRUARY, 1904. No. 566.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

VI. EASTER BOOKLETS.

FOLLOWING closely after the work of the Christmas holidays, Easter presents one of the best opportunities of the year for profitable business in the average studio. The business of this season should, however, offer a wider variety of subjects and treatment than that of almost any other season of the year, and will in many studios have to be worked out on a different line of procedure than that of ordinary studio work with the adult sitter. The writer believes that child portraiture should be made a specially strong feature at this season of the year, and that a possibility exists in this special field of work for largely increasing the studio output and enlarging one's capabilities in this most fascinating line of photography to a degree that may be made profitable for use in later years.

The gaiety of winter, particularly in larger towns and cities, with the multiplicity of social interests, always to be found in such communities, tends to keep the older members of the family in evidence through the winter months to the exclusion of the little ones, while spring, with its Easter season following closely upon the sobering influences of Lent, serves to bring the attention of parents more directly to the affairs of the family, and to concentrate it upon the budding life in the nursery and play-room. This one thought alone helps to make effective any plea or argument touching the welfare or endorsing the claims of the little ones to recognition in the family circle. Fathers and mothers are not unaware of the fleeting days of childhood, that the little one passes from one stage of development into another with startling rapidity, that the border-line of one being crossed there is no possible return to the earlier condition under any circumstances; they are simply thoughtless, heedless of the rapid development of babyhood into childhood and childhood into youth. A word of reminder, spoken in the right way, or a concrete suggestion to bring this thought to their intelligent attention is often all that is necessary to bring to the studio a group of little ones, and procure for their friends and parents a series of pictures which in later years is absolutely priceless. This thought cannot be too strongly nor too often impressed upon the public, nor can it be brought forward at a more opportune time than now. The photographer should therefore take every possible means of associating the

spring season, the Easter holidays, and thoughts of childhood with his name; to weave these ideas together with every opportunity and in every possible form, whether by newspaper announcements, talks with his customers over the show-case and in their homes, bright catchy slips, impressing this sentiment enclosed in his envelopes that go from his studio every day, or in any other way that he may find, until his public are unable to think of spring and Easter without intuitively associating his name and childhood with the thought, until the mention of the word "Easter" suggests to the mothers and daughters not only new hats and gowns, but also brings up the thought of himself as a photographer of children. Until such an effort is made, and until the public is educated along these lines, there will be little difference in the receipts of the studio from those of former years. As Tennyson says, "Men may come and men may go," but the opportunity for improvement of business will go on forever by the door.

After this association of Easter, the spring-time of all the fleeting charms of childhood, and the photographer's name has become more or less intimately woven together in the thoughts of his reading community, they should be clinched by the issuance, two months or six weeks before Easter, of a dainty booklet, illustrated with two, three, or more graceful child portraits. Select such pictures as will be free from all artificiality. Let them be natural in pose and childlike in every feature, avoiding studied effects, precocious poses or expression and all that savors of aught but the simple grace of childhood. This booklet need not be elaborate nor need it be expensive, but it must be tasteful. Its paper, both in cover, stock, and text, should harmonize in color and texture. The composition of the type should be neat and attractive, while the printing must be neatly executed and in perfect taste. Each must settle for himself the details of these questions, deciding whether the cover shall have an imprint or design, or whether it shall go devoid of both. Many claim that the latter plan is best, as it necessitates an entrance to the contents of the booklet before it can even be determined whence it comes. Others prefer a neat design on the cover page, and possibly one plan is as good as the other. No matter in what way the book is bound, nor how the matter itself is covered, the story must be well told, and a connection must be clearly established and worked out, step by step, to a logical sequence. Let the last impression left upon the mind of the reader be that the booklet throughout its logical statements and arguments and climax has a personal application to himself or herself. Avoid the use of too much matter, remembering that your readers have not time to spend over any long argument, but that the object of the story is to *interest* and lead him from point to point in the argument till the conclusion is reached and the impression made. Be careful to avoid inaccuracies of speech, and fall not into the error of undue egotism. Either will be fatal to the best interests of the publication, and will be an unworthy salesman for the productions of the studio. Do not stand unduly on the cost of such productions to the exclusion of their quality. Avoid extravagance by all means, but put into the publication enough to make it equal at least to the average quality of the work turned out. The cheap, sloppy production at once suggests the same undesirable kind of photography, and if a booklet on such lines is contemplated, I believe it were better that the project be abandoned and the money put into the purchase of better lines of mounts or stationery. It is impossible to successfully advertise artistic photography in the same way that Messrs. Pan, Handle & Co. will advertise kitchen hardware.

Everybody is interested in babies and children, even if they have none of their own, and pictures of the little tots are coveted possessions by many of their older kin. The perfection of the half-tone process and its possibilities in interpreting photography of to-day, coupled with the comparatively low cost of good reproductions by this means, opens a field for the illustration of such a booklet as I have described, which has hitherto not been known. Such a booklet, illustrated as above outlined, not only talks pictures, but shows them and suggests a concrete idea, often stronger than the argument itself.

Avoid the petty details of your business in this announcement. Leave prices,

styles, and sizes wholly out of the question. Let these be bargained for and settled at a later date. Strive only to establish the connection you have sought to build up, that there is a logical reason why the spring and Easter season should find the little ones annually visiting the studio, and let it end at that. Set forth, if you like, any peculiar advantages or special facilities by which you may be enabled to supply the wants of your patrons better than they may have them filled elsewhere, but never for a moment lose sight of the fact that you are talking child portraiture and the Easter season. In planning such a booklet, study carefully the field in which it is to be circulated, before deciding upon the edition to be printed. See to it that the size will fit the envelope you use, or that a special definite enclosing envelope is provided with the booklet and figured in the cost. Look also to the weight of the stock used in the making of the booklet. See to it that a dummy is prepared by which the exact weight of the finished booklet and its enclosing envelope may be ascertained before stock is printed and your bill for postage doubled. Failure to do this oftentimes results in serious annoyance and expense.

With the extensive line of papers in the market there need be no difficulty on this score if the proper precautions are taken. One of the most important things to be considered in the mailing of these booklets is the manner in which they should go out from the studio, and the writer believes that a vast amount of money is wasted by mailing a really good publication of this kind under a one-cent stamp in an unsealed envelope. If the production is worth sending out at all, it is worth sending out properly; and if the people to whom it is sent are respectable and have the financial ability to pay for a dozen photographs at an ordinary price, their order will be much more likely to materialize if the booklet is enclosed in a neatly addressed envelope and mailed under full-letter postage, than if the photographer allows them to suspect that he doubts the drawing-power of the booklet itself. This suspicion is an easy one to create, and can probably be created in no easier way than by evidence of Scotch "nearness" when it comes to the photographer's final act in the play. The writer believes it the poorest policy to degrade good composition, good presswork, good binding, and good everything, by mailing it under any but full postage rates.

In the next paper the subject of form letters will be treated.

A COMPARISON OF SULPHITE CHEMICALS.*

PROFESSOR NAMIAS commences his paper by giving the analytical method employed by him; but as these—important though they are—must necessarily interest the majority of photographers less than the results, I will first set forth the practical meaning of these latter:

Analyses of commercial sodium sulphite—both the crystallized and dry, or anhydrous varieties—showed that a purity consistent with the chemical formulæ $Na_2So_3 \cdot 7H_2O$, and Na_2SO_3, is not obtainable commercially even to an approximate degree. The purest crystallized sulphite obtained by Professor Namias had in it not more than 90 per cent. real crystallized sulphite. Other good commercial samples contained only 60 to 70 per cent., while others—and these were not isolated cases merely—contained only from 30 to 40 per cent.

In the case of anhydrous sulphites a notable proportion of sulphate was found, a constituent formed on the removal of the combined water of crystallization by heating. Samples of crystallized and anhydrous sulphite emanating from the same firm gave the following figures (I add the theoretical figures):

* The following contribution to a subject of the greatest practical importance to all classes of photographers is from *Das Atelier*, where Professor Rudolf Namias makes known the results of some desirable experiments. The translation and explanatory notes have been specially done for this MAGAZINE by George E. Brown, F.I.C.

	Percentage of real or dry Soda Sulphite.	
	Found.	*Theory.*
Soda Sulphite (cryst.) .	44.2	50
" " (dry) . .	55.0	100

The moral of the figures is obvious. It is frequently directed that in compounding and developing other solutions one part of anhydrous sulphite may be used in place of two parts of the crystallized salt, but in the particular instance the result of doing so would produce a bath greatly deficient in sulphite, and containing also a considerable proportion of sulphate, the effect of which on the developer is injurious. In addition to this the crystallized salt is found by Professor Namias to oxidize much less readily on exposure to air than the anhydrous sulphite, a difference due to the greater size of the crystals; the anhydrous sulphite is produced in a finely granular state. Its ready absorption of moisture, the accelerator of oxidation, is still another argument against the "dry" sulphite, and leads Professor Namias to finally decide that although theoretically better and practically more convenient, the anhydrous salt cannot be recommended, and is no longer used by him.

The simplest means of preserving sulphite in good condition is by storing it in glass-stoppered bottles into which a stream of coal gas is led for a moment before inserting the stopper. In recommending this method of displacing the air, Professor Namias apparently disregards the fact that coal gas contains oxygen, usually about 0.25 per cent., and also small proportions of sulphurous bodies which it would be unwise to seal in contact with soda sulphite intended for such a delicate reagent as a photographic developer. Solutions of sulphite are inferior to the solid salt in keeping properties, and Dr. Namias confirms the observation of C. Sordes Ellis (*Photography*, July 3, 1902) that a weak solution loses strength much more rapidly than a strong one. A 10 per cent. solution, half filling a bottle, was found to be not stronger than 5 per cent. in 5 days. Mr. Ellis found a 10 per cent. solution to be reduced to 3 per cent. in the same time, but unfortunately he did not give his analytical methods. Professor Namias finds that oxidation goes on even when the air is removed, but the change which he observes is no doubt due to the traces of oxygen in his coal gas. Coming now to the acid sulphites, potassium metabisulphite, $K_2S_2O_5$ is the sulphite chemical with the best keeping properties of all. It is "anhydrous" or "dry," that is to say, contains no water of crystallization. It has a faint smell of sulphuric acid, and perhaps owes its good keeping qualities to this minute evolution of gas, the substance itself being shielded from the air by an envelope of sulphurous acid gas. Its permanence in bottles stoppered but half-full is almost complete. The sample examined contained, after storage in this way for two years, 55.05 of sulphurous acid (SO_2), while chemically pure metabisulphite contains 57.65 per cent. The deficiency in sulphurous acid is not, however, due to oxidation; the sulphurous acid has not been converted into sulphate, but has evaporated, for only 0.37 per cent. of sulphurous anhydride (SO_3) was found—an extremely small proportion, especially in view of the fact that part of it may be introduced during the analytical estimation.

Taking crystallized soda sulphite at the purity of 90 per cent., the comparison with metabisulphite will give the following figures:

	Percentage of Sulphurous Acid (SO_2).
Soda Sulphite (cryst.)	22
Potass. Metabisulphite	55

that is to say we can afford to pay two and a half times as much for metabisulphite as for crystallized sulphite, whereas the difference in price is not great,* and the metabisulphite keeps very much better.

Two points must be noted in substituting metabisulphite for sulphite in developers, etc.: (1) This greater content of combined sulphurous acid, two-fifths part of metabisulphite replacing each part of sulphite, and (2) the acidity of metabisulphite.

The extra acid or metabisulphite is best neutralized with caustic, not carbonated alkali, because when the latter

* In England Mercer's prices are: Cryst. sulphite, 4d.; metabisulphite, 5½ d. per lb. In America the respective prices are 30 and 50 cents per lb. Apparently in Italy, where Dr. Namias resides, metabisulphite must be much cheaper.

is used bicarbonate is formed and would in some developers act as a restrainer; the difference is noticeable in the case of hydroquinone. For each 10 parts of metabisulphite 5 parts of caustic potash are needed, or 3.6 parts of caustic soda. With this precaution, metabisulphite can be substituted for sulphite in all developers; in the cases of certain energetic developers like metol or edinol an increased proportion of carbonate can be used. Dr. Namias does not give the extra proportions of carbonated alkali, but these are for every 10 parts of metabisulphite, use 9½ parts more of soda carbonate cryst., or 6.2 parts more of dry potassium carbonate.

Although potassium metabisulphite is not nearly so permanent in solution as in the solid state, it does keep, even when liquid, much better than sodium sulphite, probably because of the slight evolution of sulphurous acid which protects the surface of the solution from the air. In an open vessel, however, metabisulphite is scarcely superior to sulphite in keeping properties.

The third sulphite chemical is acid sulphite of soda, a compound which theoretically contains a much larger proportion of sulphurous acid, but in practice does not. Professor Namias might have quoted Bothamley's analysis made some seven or eight years ago. They gave the percentage of sulphur dioxide in acid sulphite (theoretically 65.5) as 39, 34, 32, and 8 per cent.

Of acetone sulphite, Professor Namias finds its behavior as a restrainer and corrector of overexposure very similar to that of potassium metabisulphite. He cannot bear out the claims of Precht that overexposure 1000 times can be corrected, but up to 100 times correct exposure acetone sulphite and other acid sulphites were found to answer well.

I have left the analytical method used by Professor Namias until last because I know that those who want it will not abandon the article at an early stage as a photographer pure and simple might on finding himself amid chemical methods.

The sulphite was dissolved in distilled water (recently boiled and cooled), made slightly alkaline (if the sulphite was an acid one) by addition of a little caustic alkali solution and standard iodine solution added in quantity sufficient to make the solution yellow. The excess of iodine was then ascertained by gradual addition of standard thiosulphate solution, using starch in the usual way as an indicator—*i. e.*, the thiosulphate solution was added until the blue color is destroyed. With this method, even if used with certain precautions, I was unable to obtain perfectly accurate and concordant results, and I am rather surprised that Professor Namias should use it as it has been found, notably by Giles and Shearer, *Journal of the Society of Chemical Industry*, iii., 197), that even with the greatest care preliminary solution of the sulphite in water is attended with oxidation.

I think that the inaccuracy of the analytical process is not sufficient to disturb the broad conclusions at which Professor Namias arrives and which are here supported, for the first time, I believe, by actual analytical figures.

The analytical method of Giles and Shearer is easy and very accurate, that I can say, and I may refer to Wm. Gassed, who, in *The Pharmaceutical Journal* of March 14, 1903, recommends its adoption for the official test of sulphite. As the method is one which every photographer might carry out with a little practice, and one also which every large user of sulphite ought to employ as a check on his chemical dealer, the following is quoted from a short paper which I contributed to *The Amateur Photographer* in 1897:

"Two standard solutions are required, prepared as directed in text-books on quantitative analysis, or purchased from dealers in analytical apparatus. The first contains 12.7 grammes of iodine (dissolved in potassium iodide) per litre. The second contains 24.8 grammes of sodium thiosulphate per litre. A solution of starch is also required, and is made by rubbing 1 gramme of pure starch to a thinnish cream with cold water, pouring boiling water over it and allowing the solution to stand. When a sediment has formed the clear liquid is decanted for use. About 0.32 grammes of the sample to be tested is weighed out accurately on a small watch-glass. A measured volume of iodine solution is placed in a beaker without dilution. The volume used should be very little

more than will be used by the sulphite. For samples of soda sulphite, take about 28 c.c.; for metabisulphite, about 9 c.c.

The sample is shaken straight into the iodine solution, and the beaker shaken round so as to dissolve the sulphite. Meanwhile, a 50 c.c. burette is filled with the thiosulphate solution, which is then cautiously added a few drops at a time to the iodine solution. The reddish-violet color gradually gives place to yellow, and when the solution is quite pale yellow a little starch solution is added. This strikes a deep-blue color. Addition of thiosulphate is now continued drop by drop until the blue color is gone. A single drop is quite sufficient to change the liquid from deep blue to colorless—such is the delicacy of the reaction. Now, see how many centimetres of thiosulphate solution have been used. Subtract this figure from the number of centimetres of iodine solution placed in the beaker. Suppose the remainder is x centimetres. Then percentage of sulphur dioxide in sample =

$$\frac{x \times 0.0032 \times 100}{\text{weight of sample taken.}}$$

If exactly 0.32 gramme of sample is weighed out for analysis, the difference between the volume of iodine solution and the volume of thiosulphate gives the percentage of sulphurous acid at once.

METOL FOR THE PROFESSIONAL PHOTOGRAPHER.

BY A. K. BOURSAULT.

WHILE during the past twenty years chemical ingenuity has devised, manufactured, and sent broadcast into the photograph market scores of new developing agents, most of them have receivd but a cool reception at the hands of the professional photographer. The amateur, always on the lookout for something new, has proved less indifferent. He took up the task of testing the practical value of the new reducers, as he had both time and money to spend liberally on his favorite hobby. Thanks to his experimental spirit and to his enterprise, we are able to form a fairly good opinion of the value of these few developers that have stood the test of time and have now received universal recognition for their indisputable advantages. The results which the amateur achieved in practical work have been confirmed by the scientist.

Working on parallel lines, but with a better conception and deeper knowledge of the chemical reactions that attend the birth of the silver image, and with better instruments and methods at his disposal for testing and studying these processes, the latter come to similar conclusions, though by a different way.

The professional photographer, on the contrary, has been very reluctant to avail himself of the newer methods at his disposal, and was contented to follow from afar the lead of the amateur and the scientist. Especially is this noticeable in the United States, where he still clings to pyrogallic acid as his only salvation and with a more sentimental than enlightened devotion. Pyro is still an excellent developer, as it was thirty years ago, but is it reasonable to assume that while during that time the world has achieved great progress in nearly every field of human activity, it should have stood still and marked time in that particular branch of photography? Happily this is not so.

Many of the newer developers afford advantages over pyro. Metol, which has been selected as the typical developer of that remarkable series of coal-tar products introduced in later years, and as the one which has deservedly acquired the ardent recognition among advanced workers, should receive an extended trial from the professional photographer, for whose work it is particularly suited. The question immediately arises: What are the advantages of metol over pyro? Well, that depends upon the point of view. Metol will not put in a negative what is not in it, nor transform a homely face into an idealized beauty. Metol will do little more than

pyro; but, and there is the point, that little is very important to the professional. It means simplification in development and better results under unfavorable circumstances. Metol will give better results with a marked economy in trouble, time developer, and "langwidge" when difficult, contrasty, or bad subjects have been taken. It will give better gradations and more of it in white draperies, bridges, etc., and generally under all circumstances it will allow of a somewhat shorter exposure. It is less sensitive to change of temperature. It reduces the time of labor in developing and in printing. And to obtain these advantages it does forego none of the advantages of pyro development. How this comes about is scientifically proven by carefully conducted sensitometric experiments. In practice, it is easily ascertained by comparative exposure on a difficult subject, all conditions of time, plate, and lighting being equal, and development being done with pyro in the usual manner and with metol.

As a practical test, for instance, the following, which was made in a studio of one of the leading New York photographers shows what might be done under difficult circumstances.

On a small table was thrown a yellow-red velvet rug: on this draped four thicknesses of veil gauze, so arranged that part of it would stand four thicknesses in the air. Behind was a white background; near the table a black fur. Then the studio light was thrown wide open, giving an intense flat light. Two plates were taken, and the same time given to both. One was developed with the ordinary pyro developer, the other with metol. The development of the first plate lasted eighteen minutes; the development with metol, two minutes and twelve seconds. Prints from both could be distinguished by the fact that the prints from the pyro negative did not have as much detail in the black fur, and was slightly choked up in the high light in spite of the slow and diluted development.

Far more correct and still more convincing are scientific experiments as recorded by Eder, Valenta, von Hübl, Luppo, Cramer, and many others, including the writer. The salient features of these show that with nearly every brand of plates, and all other conditions being equal, metol will give at least one or two sensitometer degrees more than pyro, and that it is a faster and more powerful developer, and is less influenced by changes of temperature. It is very controllable within the ordinary limits of overexposure in studio work, bromide and physical restrainers acting powerfully on it when used in sufficient quantities.

To use metol properly, however, certain rules have to be adhered to, which it is well to repeat here—the first one being not to dilute unnecessarily the developer. As metol works in surface proportionately faster than in depths, it is never necessary to dilute the developer more than its own volume, as beyond that it will neither produce more detail nor more softness, and would merely retard the obtaining of density. It is because of the too great dilution of their developer that certain photographers have been led to believe that metol was reluctant to yield enough density, while in fact it gives readily all the density wanted. It is desirable when using metol to add bromide of potassium by very much larger doses than with pyro, rationale being that with metol bromide acts far more as a clearing agent than as a retarder. Thus, in a developer compounded after the formulæ which follow below, no less than thirty minims of a 10 per cent. solution of bromide of potassium should be added on an average to each ounce of mixed developer.

Contrary to a prevalent opinion the elasticity of metol is very great when the exposure is kept anything within reasonable limits (up to ten times over). We have often developed side by side correctly timed plates in a strong metol developer without any bromide, and in one containing forty minims of bromide to the ounce, obtaining in both cases negatives with excellent printing quality and with hardly any difference in the resulting prints. Precisely on account of the slight retarding action of bromide, several plates may be developed in succession with the same amount of developer without any perceptible change in the character of the negatives, no less than six to eight 5 x 8 plates being developed in, say, four to six

ounces of developer. Two-tray development can be resorted to with metol to great advantage, one containing a well-restrained solution, the other a developer tending to softness. Although the formulæ that come with each bottle of metol are excellent, we would advise those who will give this agent a trial to use the following formula, which has the advantage of being easily controllable, and has the endorsement of some of the best foreign and home studios, this being made up in two solutions, thus:

A.

Metol	1 ounce.
Anhydrous Sodium Sulphite	5 ounces.
Water	90 "

B.

Potassium Carbonate, C. P.	10 ounces.
Water, up to	90 "

3 parts of A and 1 part of B.

The normal developer for well-exposed studio work is obtained by adding to the foregoing 30 to 40 minims of a 10 per cent. solution of bromide of potassium for each ounce of mixed developer.

For very contrasty subjects, white draperies, very short exposures, and whenever the very softest effects are desired, a developer composed as follows will answer admirably:

3 parts of A, ½ part of B, and 2 to 3 parts of water.

When necessary 5 to 10 drops of a 10 per cent. solution of potassium bromide shall be added to keep the white clear.

A somewhat simpler formula is obtained by replacing the carbonate of potash by sodium carbonate, thus:

Solution A as above.
Solution B.

Soda Carbonate Crystals	10 ounces.
Water	90 "

Normal developer, equal parts of A and B.

For all-round studio work and well-exposed plates add to this 10 to 15 minims of a 10 per cent. solution of potassium bromide per ounce of mixed developer. For softer effects add water, but never more than twice the original volume of the mixed developer.

The preceding formulæ suitably modified give admirable results on all brands of bromide papers, on gaslight papers, and lantern slides and transparencies as well. It will be perceived, therefore, how much simplified all dark-room paraphernalia become, and when the thoughtful worker considers that with two developing bottles and two trays he is able to cover the whole range of photographic developing processes, and to get the finest at that, such a method ought to impress him at once with its advantages, and commend itself for an earnest trial. It is well worth the latter, even at the cost of spoiling a dozen plates in the experiment.

THE THEORY OF THE MARIOTYPE AND OZOTYPE PROCESSES.*

BY THOMAS MANLY.

THE action of light upon a dried mixture of potassium bichromate and gelatine is described in a different way in nearly every text-book upon the subject of carbon printing. Some authors adhere to the theory that the oxidation of the gelatine is the insolubilizing factor, but the majority are content with the simple statement that light causes insolubility in a mixture of gelatine and a bichromate salt.

As far back as 1878 Dr. J. M. Eder wrote an exhaustive and elaborate work entitled, *Ueber die Reactionen der Chromsaüerer und der Chromate auf Gelatine, etc.*, which was awarded the medal of the Photographic Society of Vienna. With this invaluable essay as a basis, I will endeavor to place before you some ascertained facts which, strung together in logical order, may, I hope, throw some light upon the question of the insolubility of gelatine, gum, etc., produced by the reduction of a chromate.

We know that the action of light upon the sensitive surfaces used in photography results in the transference of a portion of the negative element from the

* A paper read before the Royal Photographic Society, London, December 8, 1903, presenting many interesting facts respecting these two processes.

sensitive salt to any substance ready to receive it.

In silver printing one-half of the negative element (that is, chlorine or bromine) is eliminated.

In iron printing one-third of the oxygen or chlorine is discharged.

In chromium printing a similar action takes place, one-half of the oxygen being eliminated.

The conditions under which a chromium compound is sensitive to light are:

1. It must contain the molecule CrO_3 (chromium trioxide or chromic acid) more or less loosely associated with a base.

2. It must be in intimate contact with organic matter.

3. The mixture of the chromium compound and the organic matter must be in a practically dry condition, but not chemically desiccated.

We will now follow the action of light upon a dried surface of gelatine impregnated with potassium bichromate. The action is a reducing one and results in the transference of half of the oxygen of chromic trioxide (CrO_3) to the gelatine, the primary abstract action being

$$2(K_2CrO_4, CrO_3) + \text{gelatine} + \text{light} = \underset{\text{Normal potass. chromate.}}{2(K_2CrO_4)} + \underset{\substack{\text{Chromium} \\ \text{sesquioxide.}}}{Cr_2O_3} + (O_3\ \text{gelatine}).$$

But it is an ascertained fact that the chromium sesquioxide is invariably accompanied by a molecule or more of CrO_3 (chromic acid), forming the chromate of chromic oxide, $Cr_2O_3(CrO_3)_n$. This is extraordinary, as CrO_3 is the very molecule that light has decomposed. It therefore cannot be produced by the simple action of light and is evidently not a direct product of reduction. It is obviously derived from the excess of the bichromate salt always present under the circumstances. It is a well-known fact that we cannot produce an oxide in the presence of an acid without a combination taking place, and it is perfectly reasonable to suppose that as soon as the chromic sesquioxide is formed it combines with the chromic acid of the bichromate to form a chromate. If we add freshly precipitated Cr_2O_3 to a solution of potassium bichromate, a chemical combination takes place and $Cr_2O_3(CrO_3)_n$ is produced. Another example may be taken: If to a mixture of chrome alum and potassium bichromate we add ammonia we do not get chromium sesquioxide, but the chromate of the sesquioxide. I think, therefore, we may conclude that light first reduces CrO_3 to Cr_2O_3 and that at the moment of the formation of Cr_2O_3 a molecule or more of CrO_3 derived from the excess of bichromate present becomes attached to it, so that the ultimate result of the action of light is

$$2(K_2CrO_4) + \underset{(CrO_3)_2\ \text{a by-product.}}{\underline{Cr_2O_3 + (O_3\ \text{gelatine})}}$$

We will now consider which of these products is the insolubilizing factor.

Leaving out the normal chromate of potassium which evidently has taken no part in the action, we have the following very simple reduction products to deal with, namely:

$$\text{Oxidized gelatine} + \underset{\text{Chromic acid.}}{CrO_3} + \underset{\substack{\text{Chromium} \\ \text{sesquioxide.}}}{Cr_2O_3}$$

I have placed the products in this order so that we may consider the bearing of each molecule on the result by a logical process of elimination.

In the first place we will consider the question whether the oxygen discharged by the exposure to light has so acted upon the gelatine that it has become insoluble. I think that a negative answer can be found in the following facts:

Gelatine can be oxidized by potassium permanganate, nitric acid or other oxidizing agents, but we get increased solubility instead of insolubility.

We can use reducing agents to produce insolubility in unexposed chromated gelatine, such as hydroquinone, ferrous sulphate and other reducing agents. In the Ozotype process the insolubility of the gelatine is brought about by a reducing agent, and in both these cases there can be no question of oxidized gelatine. Dr. Eder made an elaborate experiment which proved conclusively that the gelatine which was rendered insoluble did not contain the oxygen that was eliminated by reduction of CrO_3. We may therefore dismiss oxygen as playing any part in the insolubilizing action.

The next item for consideration is the chromic acid, CrO_3, attached to the molecule of chromium sesquioxide, Cr_2O_3. Does this produce the tanning effect? I think the answer is again in the negative. This molecule is an incidental accompaniment of the chromium sesquioxide, Cr_2O_3, and can be washed away unchanged by the action of warm water or a weak alkaline solution, leaving the green sesquioxide plainly visible without affecting the insoluble condition of the gelatine. Moreover this molecule could not have done any insolubilizing work or it would have become reduced to Cr_2O_3. The *sulphate* of chromic oxide insolubilizes gelatine and in this case there is no question of chromic acid.

The insolubilizing factor must therefore be the Cr_2O_3 (chromium sesquioxide) in an anhydrous or hydrated condition.

There are several facts and experiments which tend to show that chromic sesquioxide, its salts and basic salts produce insolubility in gelatine and other organic substances.

Take, for example, a very familiar salt of chromic oxide, chrome alum, which is a double sulphate of chromium and potassium or ammonia, the simple formula of which (leaving out the alkali sulphate) is

$$Cr_2O_3\,3SO_3.$$

Here we have chromium sesquioxide as a base without any chromic acid attached, and everyone knows that this salt has the property of rendering gelatine intensely insoluble. In its action upon gelatine it is highly probable that the acid molecule is partly reduced and that the salt becomes basic in character and therefore more nearly approaching chromium sesquioxide. It has lately been fairly well established that even the acid molecule of a salt of the sesquioxide of chromium retards its tanning action on gelatine, and that when the acid is removed the action is much more powerful.

Professor R. Namias made the following very interesting experiment. He added ammonia in limited quantities to a warm solution of chrome alum until he had produced a compound considerably nearer the oxide than the normal salt, but still retaining its fluidity. The action on gelatine was exceedingly powerful. Messrs. Lumière and Seyewetz also found that when chrome alumed gelatine was washed in a weak solution of sodium carbonate or ammonia it resisted the action of boiling water quite satisfactorily. If, however, sulphuric acid be added to chrome alum, the insolubilizing action is very considerably diminished.

The above interesting experiments and facts tend to show that the nearer we approach to the pure chromium sesquioxide the stronger the tanning effect, and that the presence of an acid retards the formation of the oxide.

It may here be mentioned that when gelatine has been tanned by either the sulphate or the chromate of chromic oxide, the acid molecule can, in both cases, be washed away by the prolonged action of warm water or by a weak solution of an alkali, leaving the green sesquioxide of chromium behind, but it seems practically impossible to remove all the chromium sesquioxide from the gelatine or paper.

Another case which tends to support the hypothesis that chromium sesquioxide combines with organic matter may be mentioned, namely, the process of mordanting used by the dyer. Now the chromic salts are the most valuable mordants known, and it is the aim of the dyer to reduce them to basic salts or to chromium sesquioxide itself if possible. Nearly all the mordants are oxides or basic salts of metals, and it is remarkable that the most efficient mordants are the basic salts or oxides of chromium, iron or aluminium, the three metals which have the strongest tanning effect upon gelatine; and it would be unreasonable to dispute that these oxides combine with organic coloring matter and also with the fibre of the cloth. There is one condition, however, which appears to be essential in all the above-mentioned cases, and that is, that the actual formation of the oxide must take place in the body of or in intimate contact with the organic matter.

I think we may therefore presume that an oxide or basic salt of chromium forms a definite combination with gelatine in the same way as it does with organic coloring matter and the fibre of cloth.

The arguments which I have advanced in favor of a definite theory with respect to ordinary carbon printing are only partly applicable to those processes in which the chromium image is first printed and the pigmented medium applied afterward. But before I proceed to the consideration of the continuing action of light and the Mariotype and Ozotype processes, I will summarize what I have endeavored to explain with reference to the ordinary carbon process, using the chemical formulæ for simplicity:

1. That the action of light on $2(CrO_3)$ plus organic matter results in $Cr_2O_3 + O_3$.

2. That the presence of a bichromate salt in excess adds a molecule or more of CrO_3 to the reduction product, Cr_2O_3 producing $Cr_2O_3(CrO_3)_n$.

3. That the eliminated oxygen is taken up by the gelatine, but plays no part in the insolubilizing action.

4. That the CrO_3 attached to the Cr_2O_3 plays no part in the insolubilizing action.

5. That Cr_2O_3 at the moment of its formation forms a definite combination with the gelatine and renders it insoluble.

The Continuing Action of Light.

In order to clearly explain the pigment processes which depend upon the formation of a primary chromium image, it will be advisable to first consider the well-known phenomenon called the continuing action of light. Most carbon workers know this phenomenon and some take advantage of it, but I do not know that it has ever been satisfactorily explained. The explanation is, however, very simple and depends upon the presence of the molecule CrO_3 which is derived from the potassium bichromate and has attached itself to the Cr_2O_3 (chromium sesquioxide) which has been produced by light.

As I have already shown, the action of light upon a mixture of gelatine and potassium bichromate results in

$$K_2CrO_4 + \underbrace{Cr_2O_3}_{\text{oxidized gelatine.}} + \underbrace{(CrO_3)_n}_{\text{a by-product.}}$$

I wish you now to particularly note that although in the first place CrO_3 was reduced to Cr_2O_3, yet we invariably discover the same molecule in the resulting product, so that every time CrO_3 is reduced a similar molecule turns up in the product. Now, the continuing action of light can only take place when the chromated gelatine film contains a sufficient quantity of water to cause a free motion of molecules through the film. To begin with we have an image composed of Cr_2O_3 CrO_3 standing in gelatine impregnated with a bichromate salt in a more or less damp condition, which for the sake of argument we may call a solution. Now, CrO_3 is soluble in this solution and slowly makes its way through the film. It comes into contact with gelatine which has not been rendered insoluble, and is thereby reduced to Cr_2O_3 and the gelatine is tanned; but at the moment of the formation of the molecule Cr_2O_3, a molecule of chromic acid CrO_3 is withdrawn from the ever-present potassium bichromate. This newly acquired molecule of CrO_3 is again slowly dissolved and travels farther into the film, to be again reduced to Cr_2O_3 when it meets fresh gelatine, and to acquire a fresh molecule of CrO_3 from the excess of bichromate salt. It is clear that this is a continuing action and that fresh CrO_3 is being constantly supplied from the large excess of bichromate salt, and that Cr_2O_3 is being constantly deposited in the body of the gelatine. The action is a spreading one, and would in time render the whole film insoluble. Temperature would have a very important influence upon the action; the higher the temperature the more rapid would be the motion of molecule CrO_3.

The Mariotype Process.

This process, discovered by Mr. M. A. Marion, in 1873, has acquired additional interest since the introduction of "Ozotype." An outline of the process is as follows: A sheet of well-sized paper is coated with a solution of potassium bichromate and dried. It is exposed to light under a negative until a faint brown image is formed. An unexposed sheet of carbon tissue having been impregnated with potassium bichromate and still wet, is brought into contact with the image. The two papers are squeegeed together and placed under pressure for about ten hours.

Now this is exactly the condition which I have described in my account of the continuing action of light. We have the

image composed of $Cr_2O_3CrO_3$, also the presence of an excess of potassium bichromate. The same action takes place, that is, the CrO_3 is dissolved and makes its way into the film to be reduced to Cr_2O_3 as it comes into contact with fresh gelatine, and to acquire a fresh molecule of CrO from the large stock of bichromate salt present. This goes on until an image is formed of insoluble gelatine, and the action would not cease until the whole substance of the image was dissolved.

The Ozotype Process.

I have already shown that the CrO_3 attached to the product $Cr_2O_3CrO_3$ is of little or no importance in ordinary carbon printing, where the pigmented gelatine film holds the sensitive salt. In those processes, however, in which a primary image is first produced, and subsequent operations are required to form the picture, it is of the utmost importance that the CrO_3 (chromic acid) should be preserved. In Mariotype it is this molecule which starts the action, and in Ozotype it is utilized in making the picture.

If we add to a solution of potassium bichromate a metallic salt which does not throw down a precipitate with chromic acid, we shall obtain a stable mixture as long as the acid condition is preserved. Thus, if we add a manganous salt to a solution of a bichromate salt, we get a fluid somewhat darker in color than the bichromate salt alone. If we spread this mixture on paper and dry it and expose it under a negative, the chromate of manganese is formed in place of the chromate of potassium, thus: the product of the action of light upon potassium bichromate and organic matter was shown to be

$$K_2OCrO_3 + Cr_2O_3CrO_3 + (O_3 \text{ organic matter}).$$

If this reaction takes place in the presence of manganous sulphate, the CrO_3 belonging to the potassium chromate will change places with the SO_3 of the manganous sulphate, and we shall get

$$K_2OSO_3 + MnOCrO_3 + Cr_2O_3CrO_3 + \text{oxidized organic matter.}$$

Now we have placed ourselves upon a much better footing by this operation, for we get two available molecules of CrO_3 instead of one, and we have also carried out another great improvement, for we have made the image very plainly visible, the chromate of manganese being the most deeply colored of all the chromates.

Taking only the insoluble products, the Ozotype image practically consists of

$$MnOCrO_3 + Cr_2O_3(CrO_3)_n + \text{oxidized organic matter.}$$

Although in commerce other substances are added for facilitating working, preservation, etc., it will be seen at once that we have produced two molecules of CrO_3 instead of one, which would have been the case had we used potassium bichromate alone. As I have shown in my remarks upon carbon printing, the molecule CrO_3 can be washed away from the oxide Cr_2O_3; this is also the case with the chromate of manganese, the CrO_3 becoming separated from the oxide of manganese by prolonged washing, especially in warm water. As these two molecules are of the utmost importance in Ozotype printing, every precaution should be taken to preserve them.

Paper coated with Ozotype sensitizing solution gives a rich golden-brown image, the printing being carried out by daylight.

When the exposure is complete the print is washed in cold water, and the greatest care should be taken that the two molecules of CrO_3 are not washed away. The washing should be short and vigorous. A long soaking in water would most probably detach them from their bases. The washed print is ready for pigmenting at once, or it can be dried and put away for some convenient opportunity for carrying out the pigmenting stage.

The pigmenting process consists of soaking a sheet of pigment plaster (which is a modified form of carbon tissue) for a short time in a very dilute solution of an acid and a reducing agent, called the acid bath, and applying the print to the plaster in the acid bath and bringing both papers out and squeegeeing them together.

There are several variations of the acid reducing bath; either sulphuric or hydrochloric acid can be used in conjunction with ferrous sulphate, or acetic acid in conjunction with hydroquinone. Ferrous sulphate and a mineral acid have the most energetic and rapid action, as not only does the acid release the CrO_3 very quickly,

but the products of oxidation as well as the reduction product has very strong tanning properties.

I will now explain the action of the ferrous sulphate and sulphuric acid bath according to Baron von Hübl's formula.

As already stated, the Ozotype image consists of

$$MnOCrO_3 + Cr_2O_3(CrO_3)n.$$

We soak the pigment plaster in a solution of

Water	1000 c.c.
10 per cent. Sulphuric Acid .	5 c.c.
Ferrous Sulphate . . .	5 grams.

and press it in contact with the initial print.

The following reaction takes place: The CrO_3 is released by the acid and a rearrangement of the molecules takes place thus:

$$2CrO_3 + 6FeSO_4 + 6H_2SO_4 = Cr_2O_3 3SO_3 + 3Fe_2(SO_4)_3 + 6H_2O.$$

Here it will be seen that the two molecules of CrO_3 are reduced to one molecule of Cr_2O_3, and that the ferrous sulphate has been oxidized to ferric sulphate.

Now this product contains two of the most energetic inorganic tanning agents known, a combination which instantly insolubilizes gelatine even when in a condition of a thin jelly. In Ozotype the chromate of chromium cannot be formed, as a bichromate salt is not present.

I do not propose to-night to enter into the consideration of the insolubilization of gelatine by iron compounds, I will merely state that when they are used in conjunction with chromates the tanning action is extremely energetic.

With regard to the hydroquinone and acetic acid bath the action is practically the same, but the insolubilizing process is slower. Acetic acid acts much less rapidly upon a chromate than the mineral acids, and it is a question whether the oxidation product of the hydroquinone plays any part in the insolubilizing action. It is rather difficult to formulate an equation in this case, but we may take it that CrO_3 is released by the acid and reduced to Cr_2O_3, the oxidation product being quinone, which has no tanning action upon gelatine.

A useful bath is

Water	1000 c.c.
Glacial Acetic Acid . . .	5 c.c.
Hydroquinone . . .	1 gram.
10 per cent. Cupric Sulphate .	5 c.c.

The action of the sulphate of copper is described by Baron von Hübl as follows: That sulphate of copper has an accelerating action upon the process of decomposition between hydroquinone and chromic acid may be judged from the following experiment: If a very dilute solution of potassium bichromate is mixed with pyrogallol the liquid is only very slightly changed. If, however, sulphate of copper is added it will immediately become deep blackish-brown. Moreover, a solution of amidol or pyrocatechin slowly assumes a darker color by absorption of oxygen from the air, but in the presence of sulphate of copper the liquids are oxidized very rapidly and are thereby turned reddish-brown. The sulphate of copper here exercises a catalytic action and accelerates the decomposition of the organic developers, and in a similar way it probably also influences the action of the hydroquinone in the pigmenting process in Ozotype. The sulphate of copper does not, however, accelerate the progress of the pigmenting action, which depends entirely upon the acid used.

The Practice of Ozotype Theoretically Considered.

In coating the paper with the sensitizing solution, the risk of decomposition is exceedingly small compared with the sensitizing of carbon tissue. This is due to the rapidity of the drying operation, which rarely takes longer than fifteen minutes and no special precautions are necessary. When a sensitive surface, like Ozotype, consisting of soluble salt, is exposed to a moist atmosphere or the drying is unduly prolonged, the salts have a tendency to creep into the paper, and a dull, weak-looking picture will result.

Any dried surface consisting of a bichromate salt in contact with organic matter will spontaneously decompose in time without the aid of light. In this respect Ozotype is in a better position than the ordinary carbon process, as not only can preservatives be added to the sensitive salt,

but the pigmented gelatine never comes in contact with a bichromate and only for a short time is it exposed to the action of chromic acid.

Nearly all the metallic chromates lose their acid molecule (CrO_3) by prolonged washing, and as this particular molecule confers the pigmenting property on the print, great care must be exercised not to wash it away. Warm water removes it fairly quickly; also exceedingly dilute solutions of acids or alkalies will cause it to break away from its base. This fact should be remembered in the pigmenting process when bringing the print into contact with the plaster in the acid bath.

In Ozotype the power of producing a brilliant, medium, or soft picture from almost any negative can be exercised to a very large extent. This is due to the opposite effects of the acid and reducing agent contained in the acid bath.

The image, as already shown, consists of two metallic chromates, and the pigment plaster is soaked in a solution of an acid and a reducing agent and is placed in intimate contact with the print. The acid acts upon the image and releases chromic acid, at the same time producing a salt of manganese. The chromic acid makes its way into the gelatine film and the reducing agents come into play at the same time, reducing the chromic acid to the sesquioxide of chromium or a salt of the same oxide, which, together with the product of oxidation (a ferric salt when the iron bath is used), combines with the gelatine, which holds them fast. Fresh quantities of acid continue to come into touch with the print, and chromic acid is liberated, which is reduced successively in the body of the film, rendering the gelatine insoluble on its way through. This action terminates when the whole of the chromates forming the substance of the print are dissolved or the gelatine has become dry.

If the acid reducing solution contains a large quantity of acid and a small quantity of reducing agent, the chromic acid will make its way deep into the gelatine, as it meets only a small quantity of reducing agent in its journey and a full strong picture with deep shadows will be produced. Should, however, too small a proportion of reducing agent be used, the chromic acid will travel right through the film before it is reduced, and a picture will be formed in which the gelatine is only incompletely tanned, and there will be no decided half-tones and the light will appear chalky. If the acid is decreased and the reducing agent is in excess, the relief will be lowered and flat pictures with no deep shadows will result. If the quantity of acid is insufficient, only a portion of the initial image will be dissolved and a weak, monotonous picture will be produced. The control in Ozotype consists in so proportioning the relative quantities of the acid and reducing agent as to give the desired effect. The text-books give these proportions.

When using the ferrous sulphate acid bath the chromic acid is formed and reduced very rapidly, and the product of oxidation has a strong tanning effect, so that time in manipulation is important. With the hydroquinone bath, however, the action of both the acid and reducing agent is much slower, and Baron von Hübl thinks this may be an advantage, as the chromic acid will be able to travel a relatively long distance before it is reduced and would therefore give higher reliefs. He also gives a preference to acetic acid, inasmuch as it does not act so quickly on the initial image, and therefore a longer time may be allowed when bringing the print into contact with the plaster in the acid bath and more latitude permissible in the other operations. But there is a limit in both cases, and I think that the limit can be learned better when the operations are short. With the ferrous sulphate bath the whole process, including printing, can be carried out in an hour under favorable circumstances.

In consequence of the insolubilizing action taking place at the contact surfaces of the paper and the film, the pigmented gelatine sticks faster to its support than in the ordinary carbon process. A partial floating away of the film is quite the exception, and the surface is moderately proof against mechanical injury even in a wet condition.

The Difference between Mariotype and Ozotype.

When Ozotype was first announced it was stated by more than one photographic

journal that the process was simply Mariotype rediscovered. There is, however, a vast difference between the two processes.

The only similarity is that the image in both cases is produced before the pigmenting operation is carried out, and that the picture is obtained in the correct position as to right and left.

As I have already shown, Mariotype depends upon the phenomenon known as the continuing action of light.

In Ozotype the bichromate salt is washed away, and therefore there can be no continuing action.

In Mariotype the reduction of the CrO_3 derived from the image is brought about by contact with the gelatine, which is a very slow and uncertain process.

In Ozotype the decomposition of the CrO_3 is produced by means of a reducing agent which does the work much more quickly and satisfactorily.

In Mariotype, in consequence of the length of time the bichromated gelatine is kept in a wet condition, there is great risk of the whole mass of the bichromate salt becoming decomposed, which would let loose chromic acid in places where it is not wanted, and the whole film is in danger of becoming insoluble; care should therefore be taken that the film does not become dry.

In Ozotype these unsatisfactory conditions are not present.

The solubility of most metallic chromates (among the exceptions may be mentioned barium and lead) in a solution of a bichromate salt gives us a clue to the reason why a surface consisting of a bichromate salt and organic matter is not sensitive to light in a wet condition. I have previously shown that chromium sesquioxide is converted by a bichromate salt into chromium chromate, and that chromium chromate is soluble in the same solution. Now, it would evidently be impossible to form a solid and insoluble image of chromium chromate in a solution which dissolves it, which would be the case before the gelatine is dry. The chromium chromate, even if it were formed, could not be deposited, but would be diffused in the solution. It is highly probable that it is not formed at all. Only when the gelatine loses moisture to such an extent that the water ceases to form a solution can the chromium chromate be deposited. The action of chromic acid (H_2CrO_4) is an example, for only when the gelatine is dry does it become insoluble.

Before I conclude my paper I would venture to say a few words upon the theory held by some experimenters that because a solution of chromium chromate produced by boiling grape-sugar in potassium bichromate insolubilizes gelatine only to a slight extent, therefore oxygen must play a part in the tanning action. I think I have pretty clearly shown that only one of the components of chromium chromate, namely, chromium sesquioxide, is the insolubilizing factor, and not the entire molecule. Now chromium chromate may be regarded as an ordinary chromate of a heavy metal; it is insoluble in water, but soluble in an excess of a bichromate salt. The solution therefore contains an excess of a chromate. These conditions would be analogous to the case of chrome alum, where an excess of the acid molecule retards the insolubilizing action.

The chromium chromate formed by the action of light is very basic in character, being most probably $3(Cr_2O_3)2(CrO_3)$, while a solution of the same substance in potassium bichromate would be Cr_2O_3-$3CrO_3$ plus an excess of available CrO_3, the negative or acid molecules which retard the tanning action.

THE outdoor group which is so frequently interesting only to friends, in many cases affords opportunities for pictures attractive to all. The average photographer is concerned only with his people; the background is too often brought to mind when he sees the print. Although little or no interest may be found in the background, it should be appropriate, and should play a reserve part, serving the chiaro-oscuro and therefore the illumination of the subject, creating an opportunity for the exit which always gives depth and an extended interest.—*Henry R. Poore, in "Pictorial Composition."*

THE WALKUP AIR BRUSH.

FEW people realize how large a part pictorial art plays in business and in current literature, and in both of these we excel in the United States. Many of the most valuable inventions in the industrial arts have had their origin in this country, and among them few rank higher than the air brush. It is a genuine artist's tool, and its use not only facilitates production to a wonderful degree but enables the artist to produce better finish and general effects.

The air brush is in its infancy in reality, and it has had to meet and overcome prejudice. By some it has been urged that by using it the artist would become a mere machine worker and lose all individuality. Experience has proven this position wrongly taken, and has verified the claim of the inventor and manufacturers of the air brush that it is truly an artist's tool, and is the best means of distributing liquid pigments ever devised, as well as the most rapid. By its use workers in many graphic arts are finishing their productions in less time than was ever deemed to be possible, and doing it with better effects. With the air brush they can produce the finest line, or can at once change to a broad shadow, finishing at a stroke what would take hours to produce by any means except this brush.

The air brush has been confined heretofore to portrait work more especially, but it is equally applicable to all kinds of painting and reproduction work in which delicate shading is demanded. It is a device for applying liquid color by means of a jet of air. The color is measured out by manipulating the hand piece, which is provided with a thumb valve, which regulates the supply just as the artist may desire. Its use is easily learned, and when it is mastered this becomes the favorite tool of the artist, and to a great extent supersedes the use of all others.

The air brush handles all liquid colors and distributes them on every kind of surface. It is used in coloring maps, geological surveys, in decorating silk, china, porcelain, in colored glass work, on albumen, bromide, solar, platinum, and electric-light prints with the best effects, and it is highly useful in finishing sketches. It is one of the most valuable tools ever devised for the use of the lithographer, both in designing and placing the work on the stone, and is in constant use in many high-class lithographing establishments, where it is considered indispensable.

Its usefulness in architectural, mechanical, and engineering draughting, and in monumental drawing and the like, where much detail is needed is extremely marked, as it permits all this at the lowest cost and with the utmost rapidity. The ordnance survey office at Southampton, England, by its use saves 80 per cent. of the time required by any other method, and also obtains a better quality of work.

In photography the air brush is indispensable as the best and most economical means of finishing prints, and unexcelled for retouching negatives. In the working up of large negatives its superiority is undeniable, and the effects produced with it are far more satisfactory than can be obtained by hand retouching. It is largely used in engraving establishments for retouching negatives and photographs.

We are able here to give only a meagre outline of this great art invention, and we cannot better conclude this notice than by recommending all those who are interested to correspond with the Air Brush Manufacturing Company, Rockford, Ill., and obtain full details. We can add that we know the company to be responsible in all respects, and it guarantees the mechanical perfection of every air brush that it sends out.

THE "one man" method of portraiture, so earnestly advocated by Mr. Milton Waide, finds an enthusiastic supporter in Miss Mathilde Weil, a clever portraitist following "at home" portraiture on special lines. Miss Weil's fees begin with $25 for an appointment, and prints are charged for at a proportionate rate. Her methods are clearly described in *The Photo-Miniature*, No. 58, just published, an exceedingly interesting little book which the progressive photographer should see.

Flashlight Group by Wm. Mills & Son, Providence, R. I.

First Prize Group, Class: Goerz International Contest, 1903

REFRESHMENT

I. Benjamin, Cincinnati

PORTRAIT GROUP

S. H. Lifshey, Brooklyn, N. Y.

PORTRAIT

W. F. Core, Cincinnati

PORTRAIT

W. F. Core, Cincinnati

By F. W. Rice, Worcester, Mass.

SCHÄFER

By Ch. Meisser, in *Photo Mitteilungen*

PORTRAIT

J. B. Schriever, Scranton, Pa.
President American School of Art and Photography

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The second of a series of illustrated papers wherein Mr. Ward will describe the working methods of prominent English and American portraitists. A brief review of the progress of professional portraiture is here completed; the study of modern work will commence next month.

THE operator of twenty years ago usually worked single-handed, and as he seldom had fixed ideas as to how he would treat any given sitter, or any matured scheme of lighting, he spent a long time shifting a blind, rushing to the sitter to adjust the pose, rushing to the camera to see the effect, then back to the blinds, back to the sitter, and back to the camera, in a bewildering race. Often he would completely change the sitter's position from sitting to standing, and even from one end of the studio to the other; would run his camera to and fro, racking it up and down, focusing in and out, while he considered the rival merits of full-length, half-length, and head-and-bust treatment. Even when all was arranged, he had to make a rush to the dark room for the plate-holder, refocus, and finally consider, run behind the sitter for a last tightening of the screws of the rest, and take a final look at the blinds and curtain before ostentatiously putting in the plate-holder, drawing the shutter, producing the watch and asking for "just a little smile, please, and the chin just a *leetle* higher—thank you; now—*quite* steady, please!" This may seem exaggerated to people of to-day, but I well remember standing for a simple full-length portrait in hat and coat, in one of the best provincial studios of some twenty years ago, when the operator was exactly eighty minutes before he exposed the first plate, and exactly forty minutes more before exposing the second.

By A. E. Sellman.

By W. J. Byrne.

Individuality and progress have been manifested in nothing more distinctly than in the treatment of the sitter. It gradually occurred to photographers to do their

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experimenting with the light before the sitter came; and, before asking him to be seated, to decide upon the position (not the pose) and the lighting arrangement for at least the first exposure. It became a common idea to have an assistant at the camera or at the blinds, while the operator did the posing, and to let the assistant manage the plate-holder and the exposure while the operator gave his own attention to securing expression. Gradually, too, the actual posing of sitters by moving their arms or pushing their heads to and fro, went out of fashion, until the operator of to-day secures his effects almost entirely by word and not by deed. He asks the sitter to move his head, places a print or other object to attract the eyes, and relies upon the arms of the chair, a little table, a book, flower, or other object, to secure satisfactory pose of hands and arms.

By Harold Baker.

By Harold Baker.

One of the earliest single-handed operators whom I personally found to fix his lighting and position (not pose) of the sitter in advance, and to rely largely for his effects upon changes in the position of the camera, was A. E. Sellman, of Huddersfield. His operating was quick and quiet; the exposure was not announced; a shutter with a long tube was used, so that the direction of the face and eyes and the expression could be managed by directing the sitter's attention to the operator, which was done, not by any request to "look this way," or "to smile," or to "keep steady," but by telling some little anecdote, referring to a flower or plant in the studio, or chatting on some topic of the day.

The same method was carried still further by Harold Baker, of Birmingham, who is not at all a believer in bothering with the curtains and blinds during a sitting. When I was with him in 1897 he sent for our mutual friend, Mr. E. C. Middleton, placed me in a chair, and said, "Talk to this man for a while, and I'll just walk around and look at you," or words to that effect. During a short chat four exposures were made, of which I reproduce two, as showing variations of expression obtainable by such a method and difficult to secure in the more formal way.

Another notable apostle of the simple method of operating is Fredk. Hollyer, who does not greatly love portrait work, who usually limits it to one day a week, devoting the rest to the copying of paintings and studies for artists, but who has done some of the most masterly portraits ever achieved by photography. He takes his operating easily; talks little, but observes much; and if the sitter is a personal friend, and the studio is not to be shortly occupied by ladies, smokes his favorite pipe. He is quite a believer in

making one pose serve two purposes, or one position serve for two poses, as may be gathered from the two portraits reproduced in small size.

One of the first photographers to reduce operating with an assistant in the studio to a perfect system was W. J. Byrne, of Richmond, the man who for very many years was unapproached for his studies of children, who swept all the awards before him; "was medalled at a hundred exhibitions," and whose recent retirement removes a remarkable man from the profession. While the taste of his wealthy and aristocratic sitters seemed to demand elaborate setting for their portraits, with the result that he carried the designing and use of fanciful accessories and backgrounds to a length which has probably not been approached by any one else, his method of working when once the sitter had entered the studio was marked by great ease, smoothness, and certainty; and so well was he supported by trained assistants that any little alteration of lighting which might seem necessary, and the making of the exposure, were directed by the slightest movement, and seldom required the spoken word. Mr. Byrne was one of the first to realize that two men working in complete sympathy were more than twice as good as the best man working alone. He was one of the first to let his sitters do most of the posing, which is a very different thing from photographing sitters who are not posed at all—many a bad operator did that, even in the earliest days.

Perhaps the most important fact in the improvement of operators' methods has been the gradual realization that "the good photographer observes more poses than he creates." This has been clearly demonstrated in the recent sittings I have had for this series of articles, and I hope that it will become apparent from the articles themselves as they proceed.

By Fredk. Hollyer.

We note with pleasure that *Pictorial Composition and the Critical Judgment of Pictures*, by Mr. Henry R. Poore, has reached a second edition. Among the many books dealing with the principles of art in picture making now offered to photographers, few can equal this work in clearness and directness of instruction. The new edition is revised and very fully illustrated. $1.50 net, Tennant & Ward, New York.

PLATE SPEEDS.

BY CHAPMAN JONES, F.C.S.

THE estimation and description of plate sensitiveness or speed has been a vexed question ever since the introduction of gelatine plates, and will doubtless remain so until photographers learn not to be satisfied with a rough general statement by the makers, and to determine the sensitiveness for themselves under their own conditions. For it is very well known, though not often accepted as a fact, that a certain sensitiveness is in no sense an inherent quantity, but depends upon the nature of the light used and upon the treatment of the plate. The practical speed of a plate is affected by the character of the developer, the temperature of the development (I think also the temperature during exposure), by the completion or otherwise of the development, and indeed by almost every circumstance concerning it.

This does not mean that the improved methods by which some makers now determine plate speeds are useless. They are obtained honestly and without prejudice (certainly in some cases), and are perhaps of all methods now used the most reliable, as showing the differences in sensitiveness under the given conditions at the time the plates are tested. The very honesty of the determination leads to the description by notably different figures of the plates that for all practical purposes are the same. I do not believe a difference of twenty-five per cent. in an exposure could be discovered in the negative unless special methods of measurement were applied, and often not even then, while so far as the resulting prints are concerned the range is often very much greater. For practical purposes an advance of from 200 to 250 H and D, or from 400 to 500, is negligible, and for many purposes double such a difference is hardly worth consideration by the photographer, though it may be of first importance to the maker as showing the possibility of further progress.

The estimation of sensitiveness in a plate is similar to the estimation of strength in a man. Strength is a vague term which may refer to the arms, legs, head, or general constitution; still it is possible to usefully distinguish between weak men and strong men. By fixing the conditions it may be possible to give numerical expression to the comparative strengths of two men, as in weight-lifting or speed of running. It is much the same with plates. General sensitiveness is not susceptible of exact description, but by so much as the general is reduced to the particular so does it become more possible to give precision to comparative statements.

It is in the want of particular descriptions of plates that we, the users of them, now suffer, and not with regard to the sensitiveness as a whole. We want and might, I believe, easily have it, if makers would be willing to give it us, some idea of the proportional sensitiveness to various colors. All that we are told now is that a plate is ordinary, isochromatic, orthochromatic, panchromatic, green sensitive, red sensitive, and so on, expressions far more vague than the old thirty times, fifty times, etc., as applied to the early gelatine plates. Color sensitiveness can be comparatively estimated independently of general speed, and without the use of a standard light in the sense that its intensity is uniform or reproducible. By exposing the plate through a graduated screen at the same time that a part of it is exposed through a colored screen the square of the graduated tints on the developed plate that matches the tint produced beneath the colored screen will be the same whatever the period of exposure or manner of development. If the exposure equivalent of the various densities of the graduated screen is known, the difference between the sensitiveness of two plates, each as compared to its own total sensitiveness, can be numerically expressed. The "plate-tester" with which my name is associated aims at this among other things, and the colored screens in it give (1) the violet and blue, the color sensitiveness utilized in ordinary plates; (2) green, or the added sensitiveness of orthochromatic plates; (3) the whole of the red; (4) the red less refrangible than the C line. Considerable experience confirms

my opinion that this is the most useful division.

But whatever makers do, it is for the user to determine for himself, under his own practical working conditions, the differences between the plates that he uses. This must be the final criterion, though it invariably saves time and material, and gives one a more complete knowledge of the various properties of a plate, to subject it to some general method of examination first. —*Penrose's Process Year Book, 1903–04.*

PHOTOGRAPHS ON MIRRORS, BACKED WITH A SILVER DEPOSIT.

BY A. J. JARMAN.

THE application of a photograph upon a mirror has been the desire of many photographers, as well as makers of mirrors, and with but very few exceptions the attempt to use a carbon transparency, then coat it over with a silver deposit, has failed, one of the principal causes of failure being brought about by the softening of the carbon image with the use of an *ammoniacal* solution of silver to produce the deposit. To be successful in this class of work, the photograph must consist of a collodion transparency made by the same means as collodion negatives are produced for half-tone and line work. In this case the screen is omitted, the transparency being produced in the camera from a negative of the subject required. It is necessary to have a wet-plate outfit, the nitrate of silver dipping bath, a bottle of special collodion, and a developer made from protosulphite of iron, a small quantity of thin India-rubber solution, and negative collodion of a good quality. The glass plates used in making the transparency must be albumenized and dried.

The formulæ for all the necessary material are here given:

Albumen Solution for the Substratum.

Albumen of one egg well beaten with a silver-plated fork.	
Distilled Water	40 ounces.
Strong Water Ammonia	60 drops.

Shake well, allow to stand for twelve hours, then filter into a clean bottle for use.

India-rubber Varnish.

Commercial India rubber can be thinned down with benzole until quite fluid.

Leather Collodion.

Alcohol	65. parts.
Pyroxyline	2. parts.
Sulphuric Ether, sp. gr.	720.35 parts.
Castor Oil	1. part.

Negative collodion iodized, one-half pound bottle; one 8 x 10 dipping bath with dipper; a stock of clean glass plates and a developer made up as follows:

Protosulphate of Iron	1 ounce.
Glacial Acetic Acid	1 ounce.
Alcohol	2 ounces.
Distilled Water	32 ounces.

First dissolve the iron salt in the water, then add the acid and alcohol and filter.

The Nitrate of Silver Bath.

Recrystallized Nitrate of Silver	3 ounces.
Distilled Water	40 ounces.
Nitric Acid	5 drops.
Iodide of Potassium	5 grains.

Shake well until all is dissolved, then filter and place in the glass dipping bath.

Fixing Solution.

Cyanide of Potassium	100 grains.
Water	10 ounces.

The glass plates must now be well cleaned in a hot solution of common washing soda, rinsed in clean water, dipped into a mixture of hydrochloric acid, 1 ounce; water, 20 ounces; washed again under the faucet, then while wet pour a small quantity of the albumen solution over the surface, allow to drain, then stand in a clean rack to dry. When dry the plates should be so packed that the albumenized surface may at all times be known. Coat one of the plates with iodized collodion, immerse it in a bath of nitrate of silver (of course, all the operations are performed away from white light). As soon as the greasy lines disappear from the collodion surface the plate may be placed in the plate holder, ready for exposure. Having placed the negative in position and focused upon the ground glass of the camera to the size required, the exposure may be made, which will require about

twenty seconds in a good light. The plate must now be developed with the iron developer by pouring just enough developer upon the plate in one sweep to cover the surface without stopping. Just as soon as the detail of the image is well rendered, wash the plate under the faucet and fix the image by pouring the cyanide solution on and off the plate a few times. Fixing will be complete in about half a minute. Wash the plate carefully under the faucet for a few seconds, then stand aside to dry.

Just as soon as the transparency is perfectly dry, which may be aided by heat, it must be coated over with a coat of India-rubber varnish, allowed to drain and dry. When completely dry a coat of leather collodion must be applied on top of the India-rubber, and this too must be allowed to dry. It must be borne in mind that the drying must be complete in each operation, and the plate must be cold when each solution is applied, or air-bubbles will be sure to appear and spoil the transparency.

The collodion picture now being ready for stripping, the film must be cut with the point of a sharp penknife about an eighth of an inch from the outer edge and placed in an acid bath made up of acetic or sulphuric acid, 1 ounce; water, 12 ounces. The film will soon begin to loosen. It may now be lifted off the plate, washed in clean water, and laid upon a piece of clean wetted glass until required for its final support. The following solutions must be prepared previously for the silvering operation and kept ready for use, although any other silvering preparation may be employed:

Nitrate of Silver	80 grains.
Distilled Water	7 ounces.

When dissolved, add water ammonia a few drops at a time, stirring with a glass rod, until the precipitate formed is nearly dissolved. A little precipitate must be left in the vessel, allow to stand for an hour, then decant the clear solution into a clean stoppered bottle; mark it A. Now prepare a second solution:

Nitrate of Silver	35 grains.
Distilled Water	4 ounces.

Warm this in a glass flask to about 118° F., dissolve 25 grains of Rochelle salts in four ounces of warm distilled water. When dissolved add this to the silver solution, shake well in a clean flask and boil for a few minutes, then filter while hot, and add 12 ounces of distilled water, place this in another stoppered bottle; mark this B. Allow this to become cold. The solutions are now ready for use. Prepare and filter a solution of

Protochloride of Tin	60 grains.
Distilled Water	10 ounces.

Take the glass to be silvered, clean it very thoroughly in warm soda water, wash well. Then pass it through a bath of nitric acid, 1 part; water, 20; wash well, then lay on the photographic films upon the part desired, and smooth it down with a very thin India-rubber squeegee. The film will adhere perfectly. Pour a little distilled water over the plate, and then a wash of tin solution, wash well by pouring distilled water over the plate, then level the plate upon a suitable stand in a warm place. Mix a few ounces of the silver solutions in equal parts, then pour this mixture upon the centre of the plate until the whole surface is covered to the edges; allow this to stand for about one hour undisturbed, when it will be found that there is a perfect coating of silver all over the plate. It may now be washed and dried, when it will be found that the photograph presents a beautiful appearance, particularly if the glass plate has been beveled. The mirror is now complete, ready for framing.

Pencil Marks on Bromide Paper. Considerable annoyance is sometimes caused to the users of bromide paper by what are called pencil markings, which sometimes occur on the white surfaces of bromide prints; the defect is usually laid to the charge of the unfortunate manufacturer, but the lines are not, however, necessarily in the paper when it is packed, but may be caused by abrasion while in the packet or at any time before development. The lines appear after development, and as they show very prominently on plain white surfaces, they always spoil what would otherwise be a good print if allowed to remain. These marks can be easily removed from the *dry print* by gently rubbing with a tuft of wet cotton wool.

THE WISCONSIN ASSOCIATION.

THE Executive Committee of the Association recently held a meeting for the purpose of making preliminary arrangements for the eighth annual convention.

The meeting was called to order by President Rice, and the following officers were present: B. A. Rice, President; E. C. Berryman, First Vice-president; J. M. Bandtel, Secretary, and W. A. Pryor, Treasurer.

The dates fixed for the next convention were April 27, 28, and 29, 1904.

As the Wisconsin Association was one of the first to work on educational lines, and as its membership is made up of the progressive members of the profession who realize that knowledge is the prize most worthy of being striven for, and as the large attendance and high quality of the work displayed at late conventions seem to indicate that its members approve of the educational plan, it was decided that this policy shall be continued, and the association will offer no prizes, but will do everything possible to make the convention a valuable school for all those who attend, and especially for those who also send some of their work.

Photographers should study their own work, try to ascertain where and by what means it may be improved, and in what way their business can be made more successful.

Making work for exhibition at our conventions, and attending the meetings of the association, where the work of others can be studied, where lectures by the brightest minds of the day can be attended, and where the members of our craft can exchange ideas and be helpful to one another, and where the spirit of fraternity and good will may enter the minds and hearts of those engaged in our noble profession, is at this time considered by the progressive ones in photography the best and surest way toward advancement and success.

Among the attractive features already arranged for I may mention that Mr. Bish, one of the successful photographers of the State, will speak on "Some of the Qualifications of the Successful Photographer," and will endeavor to point out those required by the worker who would make his business what it should be.

Mr. George C. Holloway, of Terre Haute, Ind., who has been twice elected secretary of the Photographers' Asssociation of America, and one of the enthusiastic association workers of the present time, will be with us and speak on the subject of "Starting Right." Mr. Holloway in his address will endeavor to show our members how to start right and keep going right, and also that clean, honorable business methods will prove most successful.

Other speakers will be secured and arrangements will be made for demonstrations in posing, lighting, and treatment of the subject under the light; also demonstrations in toning and handling papers.

The usual committees have been appointed, and in addition a Transportation Committee, which will arrange for reduced rates.

Certificates of acceptance will be given to all photographers who make an exhibit at the convention.

The "Smith Trophy" will be awarded for the second time and on the same terms and under the same rules as at the seventh annual convention, except that prints may be *cabinet size* or *larger*, and must be made from negatives taken since April, 1903.

All members should send work for the general exhibit, for comparison and study. These may be any size to suit the taste of the exhibitor, and may be framed or sent without frames.

As glass is liable to be broken and cause damage to the picture, it is suggested that no glass be used.

All exhibits must be in the hands of the Committee on Exhibits by April 24th.

Send all exhibits to J. M. Bandtel, chairman of the Committee on Exhibits, and mark them Photographers' Association of Wisconsin, also send notice of shipment by letter or postal card.

Fraternally yours,

J. M. BANDTEL,

MILWAUKEE, WIS. Secretary.

A HOME-MADE PRINTING PAPER.

BY PROFESSOR RUDOLFO NAMIAS, IN PHOTOGRAPHY.

THE paper which is described below is not entirely novel, as I have written of it some years ago in *Il Progresso Fotografico* and elsewhere. I have lately, however. been giving more attention to it, with the idea of finding out the best conditions under which it can be prepared and used and how the pleasantest tones can be obtained in the most economical manner, and the outcome of these experiments is set forth below.

The sensitive substances employed in this paper are ferric chloride and oxalic acid. The ferric chloride is rapidly reduced to ferrous chloride under the action of light by oxalic acid, which, with the excess of the oxalic acid present, gives ferrous oxalate.

We then have ferrous oxalate on those parts of the paper which have been affected by light, and, as everyone knows, this is *par excellence* a reducing body. Its reducing power may be made use of forthwith by immersing the exposed paper in an ammonical solution of silver nitrate—the silver is immediately reduced.

Now a few words on the most convenient method of working. We first prepare the sensitized solution by taking a hundred grains of crystallized ferric chloride, fifty grains of oxalic acid, twenty-five grains of hard gelatine, to each ounce of distilled water.

The gelatine, after being allowed to soak in the water which contains the soluble salts, is warmed in a water bath very carefully to the lowest temperature which is sufficient to dissolve the gelatine. The solution is spread by means of a brush on a fairly good well-sized paper. The special qualities of paper made for photographic processes, which are very expensive, are not a necessity for this purpose.

An important point is to dry the paper as quickly as possible by heating it at a stove. In this way the penetration of the sensitizing solution can be prevented. Both the liquid prepared as above and the sensitized paper may be kept without damage for a considerable time, for, while the reaction between the ferric chloride and the oxalic acid may may be regarded as exothermic, the great tendency to oxidation of the ferrous salts is opposed to the reduction.

The paper is very rapidly affected by light. Its sensitiveness is such that in bright sunshine with a negative of reasonable intensity a print is obtained in about three minutes. The progress of printing may be watched, the image appearing light upon the yellow background of the paper. A little practice will be wanted in order to make sure that printing is carried to the proper depth.

The paper ought to be developed soon after printing. This is effected by immersing it in a 2 per cent. solution of silver nitrate, to which has been added sufficient strong ammonia just to cause the precipitate which takes place when the ammonia is first added to be redissolved. In this liquid the image appears almost instantaneously, and after the print has been allowed to remain in it two or three minutes it is taken out and washed. The picture will be seen to be in a vigorous black on a deep yellow ground. This deep yellow is produced by iron oxide resulting from the action of the ammonia upon the sensitized coating. After a short washing we may get rid of the iron oxide. This can be done very easily by means of a 4 or 5 per cent. solution of oxalic acid. The unexposed portions become quite white. The print is then washed for at least ten minutes to get rid of the acid, and it only remains to fix in a 5 or 10 per cent. solution of sodium hyposulphite.

The tint finally obtained, which is not very black, is to me a pleasant one. A little warmer tone can be obtained if we employ for fixing a 10 per cent. solution of sodium sulphite. I would point out that the only use of the fixing is to get rid of the minute traces of silver which have been absorbed and retained by the paper in consequence of its immersion in the silver nitrate solution. These traces, although very small, cannot be got rid of by mere washing in water.

Let us now see what treatment this paper requires in order to obtain various colors, or, at our option, a finer black.

(1.) Instead of fixing in plain hyposulphite solution, let us add to the 10 per cent. hypo bath a saturated solution of lead acetate until the white precipitate which first forms is on the point of redissolving. We shall obtain in this way darker tints than with the plain hypo.

(2.) We may fix in the solution just described, but with the addition of ten minims of a 1 per cent. solution of gold chloride to each ounce of the liquid. In this way we shall obtain fine violet blacks.

(3.) After the oxalic-acid treatment and a very careful washing the image may be toned into a solution containing one grain of gold chloride in each two ounces of water, to which has been added twenty grains of sodium bicarbonate. After toning it we can fix in the plain hyposulphite bath or in the hyposulphite with lead acetate above described (No. 1). In this way, according to the time during which we leave the print in the gold solution, we can obtain anything from a warm tone up to a vigorous black with a violet shade, which for some subjects is very effective.

(4.) We can also tone the paper with platinum by adding a salt of platinum to the oxalic-acid solution which is used to clear the print. Either platinous chloride (potassium chloroplatinite) or platinic chloride may be used. We add one grain of potassium chloroplatinite or of platinic chloride to two ounces of the oxalic-acid solution, and in this way quickly obtain very intense and pleasant blacks, which are still further improved if the print is fixed in the No. 2. bath. The chloroplatinite is preferable to the platinic chloride, because it does not reduce the image so much.

I have endeavored to find out some means by which the action of watching the progress of the printing is made more easy. I have succeeded best by adding to the sensitizing solution a small quantity of Prussian blue (ferric ferricyanide) dissolved in a solution of oxalic acid. In this way we get the sensitive surface of a bluish tone which is bleached by the light (which transforms the ferric ferricyanide into ferrous ferricyanide), which bleaching helps very much in watching the progress of printing.

The process is so economical and easy that it is worth trying both by amateurs and by professionals of an experimenting turn. It may be pointed out that the method can be applied also both to linen and cotton.

BLACKENING LENS MOUNTS, DIAPHRAGMS, ETC.

THE following résumé of recipes and methods for blackening metal parts of cameras, lens mounts, diaphragms, etc., comprises the best available formulæ for the purpose and will doubtless be found useful in the photographer's workroom:

The fine dead-black finish on the inside of the lens mounts is obtained by mixing finely triturated lampblack with the lacquer used for the outside, and applying the black lacquer in one or two coats with heat to the inside of the tubes. The result is a finely grained black surface which reflects no light. As soon as the surface has received one or two coats no more must be given, as the repeated application of the lacquer would make the surface glossy, the very thing which it is wished to avoid. This method of blackening the brass does excellently for all portions which are not to come in contact with the fingers; but wherever the brass requires to be handled recourse must be had to something different from lampblack. Nitrate of copper may be especially recommended for this purpose. A solution is prepared by dissolving copper wire in nitric acid, weakened by adding 3 or 4 parts of water to 1 of acid. The article to be blackened is heated pretty hot, and then dipped into the solution; it is then taken out and heated over a Bunsen burner or spirit lamp. When the article is heated to the proper temperature the green color of the copper first appears, and as the heat is increased the article becomes a fine dead-black color. It is not necessary to lacquer it, it being best to give it simply a good brushing to remove

the dust, when it may be considered finished. The color becomes blacker by the application of a single coat of lacquer, provided it is not put on in sufficient quantity to make the surface glisten; too much lacquer, however, invariably produces an objectionable polished surface. — Brannt, *The Metal Worker's Handy Book.*

Blacking Metals. Brass. The dead black on optical instruments is produced by dipping in a solution of chloride of platinum. To make this solution, take 2 parts hydrochloric acid, 1 part of nitric acid, mix in a glass bottle and put in as much platinum foil as the acid will dissolve when placed in a warm sand bath, or to hasten the solution heat to nearly boiling point of the acids. One-half ounce nitric and 1 ounce of hydrochloric acid will absorb about 30 grains platinum, but in order to neutralize the acid it is better to have a surplus of platinum. Dip the article or brush in the chloride.

Lustrous Black on Brass. Mix equal parts of copper sulphate and sodium carbonate. These solutions must be hot. Wash the precipitate as it lies on the filter paper and dissolve immediately in ammonia; there should be an excess of ammonia. Dilute the solution with water (one-quarter), and add a small quantity of plumbago, 20 to 50 grains, depending on the amount of the solution used, then heat to 100° F. The brass articles must be thoroughly cleaned and left in this solution until they are black; wash well in water and dry in sawdust. Prepare only as much solution as is wanted for immediate use.

Blue-black Coating for Brass. Seven ounces copper carbonate is dissolved in 1½ quarts of strong ammonia. A precipitate is formed, and the solution is diluted with 1 quart of water.—*Scientific American Cyclopedia of Recipes.*

Blacking for Optical Instruments and Other Brasswork. For dead black for inside of tubes use alcoholic shellac varnish and lampblack, equal parts by weight, and thin with enough alcohol to make it flow freely with the brush.

Dissolve in 4⅜ fluidounces of ammonia, ½ ounce copper carbonate, stirring constantly while dissolving. Add ½ pint water. The article should be suspended in this solution by brass or copper wires for a short time. This coating is durable in the open air.

Optical and philosophical instruments made in France often have all their brass surfaces of a fine dead-black color, very permanent, and difficult to imitate. The following, obtained from a foreign source, is the process used by French artisans: Make a strong solution of nitrate of silver in one dish, and of nitrate of copper in another. Mix the two together and plunge the brass into it. Remove and heat the brass evenly until the required degree of dead blackness is obtained.

The best means of producing a black surface on brass, pinchbeck, or silver is said to be platinum chloride, which is allowed to liquefy by exposure to the air. It is rubbed in with the finger, or, best, with the ball of the thumb. After blackening, the object is washed and polished with oil and leather. Platinum chloride is dear, but a little of it will do a great deal of work.

Black Brasswork for Instruments. Take lampblack, about a thimbleful, and put it on a flat stone or smooth slate; add four or five drops of gold size and mix well with a palette knife, make the whole about as thick as putty; mix well. The less gold size there is the better, so that the lampblack just sticks together; if too much gold size be added, the effect will be a bright black, and not a dead black. Now add turpentine, about twice its own volume to the whole, mix with a camel-hair brush, and apply to the brasswork.

Dull Black on Copper. Brush over the copper with a solution of platinum chloride diluted with five times its bulk of water. When thoroughly dry rub off with an oiled flannel rag.

Black Color on Brass. Make a sat. solution of sulphate of copper. Add a strong solution of common washing soda as long as any precipitate forms.

Allow precipitate to settle, and pour off

clear part. Add more water to precipitate, stir, and allow to settle.

Continue until everything has been washed from the green carbonate of copper. Six or eight times should suffice.

Add liquid ammonia until all dissolved and a clear, deep-blue liquid is obtained.

Boil the brass in potash solution to remove oil and grease. Rinse and dip in the solution, which is heated from 150 to 175° F.

Leave in until desired color is produced. Rinse and dry in sawdust. For best results on yellow brass plate with copper first.

To make solution from commercial plastic carbonate of copper, dissolve one pound of the plastic carbonate in two gallons of strong ammonia.—E. S. Sperry, *Scientific American Supplement*, No. 1443.

Blacking for Metal. Take 4 parts turpentine, 1 part gold size, or copal varnish. Add best vegetable black till the whole is of the consistency of thin cream. Grind and strain through muslin. Apply quickly once over the work with a soft-haired brush, and dry off in a warm room or closet. This is the Berlin black used by stove-grate makers. It is also used in some classes of optical instruments.

Chloride of platinum painted on zinc gives a very dead black.

A third method: Vegetable or drop black, mixed with 6 parts of turps, 1 part japanner's gold size, 1 part terebene.

UNAL, AN OLD DEVELOPER IN A NEW FORM.

BY ALEX. MACKIE.

THE virtues of rodinal as a developer have been so universally recognized that the introduction of the same substance in a solid form is of some interest. That the most convenient form to buy a developing agent is as a liquid, in such a state that it is only required to add so much of the contents of the bottle to so much water to form a complete developer, is indisputable; but whether any developing solution, however concentrated, retains its original properties is very much open to doubt. It seems to be an essential to an extremely active developing agent that it should be a readily oxidizable substance; hence the mixed developer as used in practice more or less rapidly loses its power. In concentrated solution, an oxygen-absorbing substance such as a sulphate, being present, the deterioration is greatly retarded; but it is not prevented. With some developers there is a very noticeable loss of energy when a solution, even when made with a preservative, has been kept for a considerable time, notwithstanding the solution does not show the ordinary sign of oxidation—darkening in color. A few weeks ago I discovered a packing-case containing chemicals removed from my old house just four years ago. Among the contents was a bottle of pyro solution, 10 per cent., made with equal quantities of pyro and metabisulphate of soda. In appearance it was perfectly good; the bottle was nearly full, and the change in color hardly noticeable. Out of curiosity—or, rather, it was to confirm or otherwise my impression that pyro in solution does lose its developing power—I exposed a plate, and developed it with a developer made up of this solution according to my usual formula. The deterioration was distinctly marked, not only in the time of the appearance of the image, but in the time required for the completion of development. But not only in time was the change manifest; the resulting negative was flatter in the scale of gradations, and entirely different in appearance from one developed with freshly prepared solution. It was precisely like a negative developed with a pyro developer previously used for developing several plates. Of course, it is not a corollary that every developing agent loses its power in solution because pyro does; but my general experience convinces me—and it is confirmed by our chemical knowledge of the constitution of organic developers—that decomposition commences directly opportunity occurs by the introduction of water.

It does not follow that a developer loses its activity more or less quickly because the signs of decomposition are more or less evident; it is not safe to trust to appearance, as the example I have given shows.

Another point is the fact that the action of a developer which has been robbed of a proportion of the active principle by chemical change is not necessarily the same as one in which the active principle is present in less amount. The product of the chemical change itself has an influence on the result. Possibly this may be due to mechanical rather than chemical action, just as the presence in the developer of an inert substance of a viscid nature—such as gum, sugar, or gelatine—appears to act mechanically, not only in slowing developing action, but in modifying the character of the negative. Rodinal, according to the makers, contains no excess of caustic alkali and only traces of carbonic alkali, but consists of an alkaline salt of paramidophenol and a neutral sulphate. The contents of the bottles, when unopened, consists of a solution slightly tinged; but in the course of using the solution darkens in color, and if the consumption is spread over a few weeks it becomes dark brown. The makers state that the change produces no noticeable effect, and this is literally correct. In the ordinary course, no one would notice any difference in the action or the result, but it does not follow that no difference would be found on a critical test.

Unal is introduced as rodinal in a solid form, and if it could be proved that rodinal does appreciably deteriorate in keeping it is undoubtedly an advantage to small users and those in hot climates, where, of course, chemical action—that is, deterioration—takes place more quickly than in the temperate zone, to be able to mix the developer at any time to its standard quality.

For experiment I bought a box of ten glass tubes of unal, each containing the quantity to make 3½oz. of developer of equivalent strength to a solution of 1 in 25 of rodinal. The bottle of rodinal on my dark-room shelf was about half full, and a month or six weeks, or perhaps a little longer, had elapsed since it was first opened. It was brown in color and distinctly darker than at first. Mixing a solution of 1 to 25 of rodinal and another of unal of equivalent strength, and simultaneously applying these two developers to two test plates, I found that the image on the plate with unal made its appearance first by quite an appreciable time, and this advantage it maintained throughout, the relative times required for completing development being approximately 4 for unal to 5 for rodinal. This more energetic action I anticipated would make an appreciable difference in the scale of gradation, and it did so. The unal negative was steeper in scale, and was, to use the ordinary expression, a pluckier or more brilliant negative. Rodinal is a developer the effect of which is modified in a marked manner by its degree of dilution. It is this feature which renders it a one-solution developer, a practical one for critical employment. Naturally, this property exists also in unal, and another experiment was made on the same lines, employing fresh solutions, but diluting the unal developer by adding 20 per cent. of water. The unal plate still appeared first, but the difference in the resulting negatives was scarcely noticeable.

These experiments must not be taken to constitute a critical test of unal as against rodinal. As unal has the same constituents as rodinal, freshly prepared rodinal would doubtless act as energetically as unal, but the test has a practical value in showing that rodinal, in the state it exists on the shelves of many hundreds of dark rooms—that is to say, in partly filled bottles which have been standing some time—is not critically equal to the freshly prepared material. It is true that the deterioration is not sufficient for the average photographer to notice, and, indeed, it may be compensated to a great extent by a little longer development; but whatever disadvantages there are with rodinal are entirely obviated with unal, and it has the advantage of being in more portable form. A bottle of unal or a few tubes of it and some crystals of bromide of potassium form a developing outfit which is not of the usual makeshift character, but sufficiently comprehensive to suit the needs of the firmest believer in control in development.

A SIMPLE PROCESS FOR MAKING SEPIA PAPER WITH THE SALTS OF IRON.

BY A. J. JARMAN.

THE production of photographic prints in sepia by the platinum and gelatine process is well known and understood by photographers generally. There is another method of obtaining sepia prints by the use of the salts of iron. The process for preparing the paper is extremely simple and easy in manipulation, so that anyone desirous of making their own brown prints or sepia paper can readily do so.

Some classes of work demand a cheap paper for producing sepia prints, and the process about to be described will, in most cases, meet the requirements.

It will be necessary, in the first place, to select suitable paper, because any kind of paper cannot be used; most of the commercial papers contain impurities that would give results which would prove unsatisfactory, producing metal spots and other defects. The special plain papers sold by large photographic stock dealers is entirely satisfactory, and can be purchased in sheets at 50 cents per dozen. The heavier rough-surface papers are also suitable, and Whatman's hot-pressed drawing paper can also be used. The only defect of the latter is that the finished print is somewhat hard and contrasty; if a negative is used with this paper that is a little thin, then excellent prints can be obtained. It will be necessary to have a drying closet heated to 120° F., in which to suspend the paper as soon as it is coated. Quick drying produces a paper that enables the printed image to keep well upon the surface. A few clean wood photographic clips will be required, which should be kept entirely for this class of work.

The sensitizing solution is made up as follows:

Distilled Water . . .	8 ounces.
Ammonia Citrate of Iron .	384 grains.
Nitrate of Silver . . .	80 "
Tartaric Acid	80 "
Gelatine	60 "

Soak and dissolve the gelatine in a portion of the water; also the nitrate of silver and tartaric acid, using three ounces of water to dissolve the iron salt in. When all are dissolved, mix together and filter; pour this mixture into a clean porcelain or glass tray and float the paper thereon. Raise the paper, allow the excess of solution to drain back into the tray by placing one of the corners of the paper against one corner of the tray, then suspend it in the drying closet. These operations must be conducted under a weak yellow light, because both the sensitizing solution and the coated paper are very sensitive; in fact, the sensitiveness is four or five times as great as blue-print paper. As soon as the paper is dry it must receive a second coating, taking care to reverse the position of the sheet of paper when replaced in the drying closet.

A moderate quantity of this paper should be prepared for use and used up without too much delay between the time of coating and printing. The printing must be made moderately deep, and as soon as the prints are made they should be placed into clean cold water, and washed three or four times, then placed into a very weak solution of hyposulphite of soda, made up of hyposulphite of soda, ½ ounce; water, 25 ounces. A few minutes will suffice to fix out any trace of the salts of silver. The prints should then be washed in half a dozen changes of clean water, blotted off in clean blotters, then suspended by a clean wooden clip to dry. If a number of sheets of paper of different surfaces have been coated, it is advisable to roll the paper upon itself, wrap it in a sheet of hard glazed tissue paper (the kind that is made to imitate waxed paper), then place it in a suitable tin case—those that are used for the storage of platinum paper are well suited for this purpose—and the lid of the tin case bound round with a piece of rubber tape, such as is used for bicycle tires. This will ensure a fairly good air-tight joint.

A few trial prints should be made from different kinds of negatives, which will soon enable the printer to ascertain the best class of negatives for the work. Care must be taken not to have the hypo solu-

tion at all strong, otherwise the image will bleach too much and the color will also not be satisfactory. The solution will not keep when once mixed, so no more should be made up than is required for the amount of paper to be coated.

ACETONE SULPHITE: ITS PRACTICAL UTILITY.

BY T. THORNE BAKER.

IT is perhaps difficult to write on a subject about which one feels very enthusiastic without the danger of influence and prejudice directing the steps of the author; but in such a case as the present, where I wish to point out the advantages that can be derived by making use of one certain chemical reagent, it is perhaps permissible to bestow such praise upon it as the result of many months' practice with it warrants. There is a certain charm about using acetone sulphite, as it is a floury, white powder which dissolves very readily in water; and where it is used as a preservative there is not, except in certain cases, the necessity of accurately weighing it out.

It can be made to serve the purposes of preservative for developers and fixing baths, of restrainer for developers, and reducing agent in other cases. I propose to give a practical note or two on these several applications, one by one.

When used as a preservative for developers I have found it convenient to use about twice the quantity of organic reducer taken: thus, a solution of hydroquinone 1 part, acetone sulphite 2 parts, water 100 parts would keep almost indefinitely. It replaces quite five times its weight of sodium sulphite, and owing to its compactness and solubility it forms a ready means of preparing concentrated developers.

For touring purposes I suggest powder developers somewhat as follows:

Developer (such as Hydroquinone, Edinol, etc.)	1 gram or 15 grains.
Acetone Sulphite	2 grams or 30 "
Sodium Carbonate (desiccated)	5 grams or 75 "

Each powder of the above proportions may be corked up in a test-tube or small glass cylinder, and then dissolved in 100 c.c. or 4 ounces of water when required for use. A distinct advantage rests in the fact that the acetone sulphite, being of a slightly acid nature, acts sufficiently as a restrainer to obviate the necessity of potassium bromide.

The restraining action of acetone sulphite is made use of for obtaining warm tones on gas-light papers, which it renders very certain and easy. The following will be found a good formula to employ as a basis for working. The tone, of course, depends on the amount of overexposure given and the amount of alkali used:

Edinol	1 part.
Acetone Sulphite	5 parts.
Sodium Carbonate (Cryst.)	4-8 "
Water	100-150 "

For developing partly printed P. O. P. without previous immersion in bromide solution I have found the following to give as good results as any I have obtained by other means:

Edinol	1 part
Acetone Sulphite	2 parts.
Water	250 "

(Or more, according to the particular brand of paper).

To this add equal parts of ammonia and ammonium carbonate, in quantity varying as the tone required. If instead of plain fixing the prints are then placed in a combined toning and fixing bath, they come out much as ordinarily printed pictures, except for the inevitable lack of pureness in the whites.

Perhaps the best use to which acetone sulphite can be put is its introduction into the fixing bath, which it renders acid and at the same time preserves indefinitely. I have open dishes of 20 per cent. hypo-solution containing, roughly, half an ounce of acetone sulphite to the pint, lying about in my laboratory for sometimes a fortnight, and it rarely gets discolored, even when plates developed with different kinds of developers have been fixed in it without any intermediate washing.

Some recent experiments showed that a

5 per cent. solution of acetone sulphite is a useful "blackening" bath for plates bleached with the mercuric chloride intensifier. According to Prof. Precht, much better gradation is obtained in the intensified negative than if sodium sulphite be used. The "re-blackened" plate is, however, of a greenish-brown color, which makes an originally black negative seem almost like a pyro-developed one. The above notes will, I hope, indicate some of the directions in whlch acetone sulphite may be employed; it is, to say the least, a very handy chemical to have in the dark-room, and one which improves on acquaintance. —*British Journal Almanac, 1904.*

REPORT OF EXECUTIVE BOARD MEETING P. A. OF. A.

SOUTHERN HOTEL,
St. Louis, January 11, 9 A.M.

Upon the call of the President, C. R. Reeves, the Executive Board of the P. A. of A. met in executive session at above hotel, all members being present: President, C. R. Reeves; First Vice-presidents, Chas. W. Hearn and C. J. Van Deventer; Treasurer, F. R. Barrows; Secretary, Geo. G. Holloway.

The Secretary reported as follows:

Received on 1902 account	$128 31
" from floor space	1715 00
" " desk space	300 00
" " advertising and entertainment fund	1411 03
" " sales account	6 00
Total recepts	$3560 00

The Treasurer reported:

Cash on hand Jan 1, 1903	$5,175 89
Received from Membership and Dues	2,659 00
Received from Secretary	3,560 61
Refund Traffic Association	17 00
Total receipts Jan. 1, 1903	$11,412 50
Disbursements as per vouchers from Nos. 330 to 402, inclusive	5,341 76
Balance on hand Jan. 11th	$6,076 74

The President appointed C. W. Hearn and C. J. Van Deventer to audit the books of the Secretary and Treasurer, which were found correct and approved.

On motion it was decided that the next Photographers' Association of America Convention be held in St. Louis from October 3d to October 8th, inclusive.

The Executive Board were fortunate in securing the Forest Park University Hotel in which to hold the meetings of the Photographers' Association of America. This hotel is within a stone's throw of one of the entrances to the World's Fair Grounds, and is capable of taking care of our members. This will be the grandest convention ever held in the history of the Association, and sociability will be one of its main features. (More anon.)

On motion it was decided that the President appoint an Honorary Vice President from each State to co-operate with the Executive Board in their respective States.

On motion it was decided that the Convention be known as the World's Fair Convention of the Photographers' Association of America.

On motion it was decided that, in accordance with a resolution passed in 1903, certificates of life membership be prepared and presented to all Past Presidents of the Photographers' Association of America during one of the business sessions of the coming convention.

The following committees were appointed by the President:

Badges and Buttons: F. R. Barrows and Geo. G. Holloway.

Transportation: Geo. G. Holloway and C. R. Reeves.

Hotels and Accommodations: C. J. Van Deventer, C. R. Reeves, and F. R. Barrows.

Decorations and Hall: Charles W. Hearn and C. J. Van Deventer.

Association Review: Chas. W. Hearn and F. R. Barrows.

Entertainment: Entire Executive Board, C. R. Reeves, Chairman.

Printing and Advertising: Geo. G. Holloway and C. R. Reeves.

Committee on Information: Geo. G. Holloway, Chairman.

With every assurance to the photographers of America that the coming convention will be one long to be remembered, and trusting that it will be our pleasure to meet you in St. Louis in 1904, the Executive Board hereby seeks the hearty support of all progressive photographers in the land.

Respectfully submitted,

GEO. G. HOLLOWAY,
Secretary P. A. of A.
Terre Haute, Ind.

ABOUT TRICHROMATIC PORTRAITURE.

BY HENRY O. KLEIN.

THE idea of making the three-color process serve for photographic portraiture is not a new one. Successful experiments in this direction were made in 1886, shortly after Professor Vogel published the results of his important researches referring to color sensitizers. However, until a very recent date trichromatic work was chiefly associated with the photo-mechanical reproduction of oil paintings or still-life subjects, and in these directions has reached a very high state of perfection. The publication of the now well-known *Lady with the Red Sunshade*, a piece of trichromatic portraiture made by Professor Miethe, of Berlin, and received in this country with remarkable acclamation, awakened a new interest among professional portrait photographers, who may believe that trichromatic portraiture is a process which is sufficiently developed to serve commercial purposes. This is, however, by no means the case. Three-color photography has made great progress since its introduction; three-color printing, however, very little. The general rapidity of color sensitized plates has been greatly improved, while the color sensitiveness of plates for almost any part of the spectrum and the photographic decomposition of the color of an object into three monochromes showing correct color values are both accomplished facts.

The new dyes, ethyl red, orthochrome, and many more, and the now commercially obtainable light filters of high perfection have made the production of trichromatic negatives a comparatively simple process which every professional portrait photographer can certainly practice with success. But can we print our negatives without the most extensive manual labor, which requires a technical knowledge of the treatment of imperfect printing forms and a knowledge of color, which an experienced chromolitho artist would wish to possess? Have we found printing inks complying in color and purity with the most fundamental principles of trichromatic work? Is the uninitiated professional photographer aware of the infancy of this particular branch of this process? The so-much-admired *Lady with the Red Sunshade*, if printed by the side of an unretouched first proof would have made a capital object-lesson of the skilful manual labor required to perform the compromise which we are bound to make when departing from the most essential conditions of this difficult process. As it was we only saw a finished proof, and we were inclined, and many times led to believe, that it was a colored picture produced by purely photographic means.

Sanger Shepherd's and Lumière's excellent color transparencies, which are, perhaps, the most perfect photographic colored reproductions of living objects, and which are produced by a process permitting the use of aniline dyes of great purity and luminosity, prove the perfection of trichromatic photography and its great possibilities. Unfortunately this and its sister-process of transferring the colors from the films to gelatinized paper are not processes for the professional man, but for the well-to-do amateur, who does not mind expense and time to occasionally produce a perfect reproduction of a living object without the extensive use of manual corrections.

One and certainly the most promising process is collotype, possibly photogravure. The former will, if worked under suitable conditions—which, by the way, are not easily securable—give most satisfactory results in trichromatic work. It is a most suitable process for the purpose, and de-

serves more attention. Practical application, however, will show whether a trichromatic portrait, which cannot be retouched like an ordinary negative, will be appreciated by "Vanity Fair," and whether the first artist in natural color photography will not end his career in the bankruptcy court, where he will have plenty of time to reflect on the pitfalls of trichromatic portraiture, which is at present of about the same commercial value as the interference methods. —*Penrose's Process Year Book, 1903–04.*

MOUNTS AND MOUNTING, FROM A CHEMICAL POINT OF VIEW.

BY "METEOR."

THE choice of mounts, the methods of mounting, are subjects which the artist-photographer treats of, so that it is really out of my sphere; for I am not a photographic artist, and will not therefore attempt to write about art. On the other hand, I will treat my readers to a purely chemical article on Mounts and Mounting, and trust that besides being original and away from the usual run of photographic articles, it will be of interest, not only to the average reader, but the fuzzy-typist as well.

It will perhaps be advisable to discuss mountants first, as, unless we are provided with a suitable mounting medium, the print will not be permanent, and hence had better be left unmounted. There are two main kinds of mountants; those prepared with gelatine and those made with a starch or dextrine.

It is a matter of importance to use only the best kinds of gelatine for a gelatinous mountant; common gelatine is liable to contain certain salts and a slight amount of acidity, both of which are deleterious. If it be of too hard a variety, moreover, and the mounting be at all ineffectual, the print will be liable to curl, and hence the best to employ is some such gelatine as Nelson's No. 1, which is very soft and extremely pure. For a preservative, either carbolic or salicylic acid may be used.

The following will be found a reliable gelatine mountant, the method being due to Mr. E. J. Wall: Soak two hundred grains of soft gelatine in six ounces of water, and warm the mixture up, stirring it until all is dissolved; then stir in two and a half ounces of Columbian spirit, and allow the solution to set. If when set any of the spirit separates out, the jelly should be remelted and a very little more water added. If rightly made, a milky-white, firm jelly will be produced, which will keep for considerable time. The alcohol seems to act somewhat as a preservative, but a little carbolic acid may be added if desired. The mountant is kept in this jelly form until required for use, when it must be remelted and used while warm.

Gelatine dissolved in acetic acid is the basis of most so-called "glues," and as acid is the very thing to be avoided in mountants, no glue or gum of any kind should be used, unless it be gum arabic dissolved in two or three times its weight of water.

Starch paste is frequently recommended for mounting photographs, but it can hardly be said to be one of the best media. Some powdered starch is mixed with its own bulk of cold water, and boiling water is then poured onto it, the whole being well stirred all the time, until it begins to thicken; it is best used while warm, and should never be kept as soon as it becomes acid and ultimately mouldy.

Dextrine is perhaps the best of all mountants, and if made up with a preservative it may be bottled off, and will keep indefinitely. Dextrine can be made from starch by boiling a "gelatinous" solution of the latter with a small quantity of dilute acid, such as hydrochloric or sulphuric acid; it soon loses its thickness under these conditions, and becomes thin; the excess of acid can be neutralized when sulphuric acid is employed by adding chalk (calcium carbonate), and the liquid filtered from the calcium sulphate formed; this liquid, when gently and carefully evaporated down on a water-bath, gives a gummy mass consisting of maltose, dextrose, and

dextrine. Impure dextrine is of a yellowish color, but the purified substance is quite white and not unlike starch itself.

When mixed with hot water the white dextrine again turns to a creamy-yellow color, which on cooling is reconverted to a white mass. If boracic acid be used for a preservative there will be a liability to hard granules forming, which will raise up ugly "pimples" on the print; salicylic acid, or thymol, is therefore preferable, and a very small quantity of oil of lavender can be introduced with advantage.

The following will be found a useful dextrine mountant: Mix thoroughly three ounces of white dextrine with four or five ounces of cold water, and add a quarter of an ounce of a 5 per cent. solution of either thymol or carbolic acid, and two drops of oil of lavender diluted with a drachm of alcohol. Now heat up thirty ounces of water to boiling temperature, and pour it on to the thick mass with constant stirring. Work the whole of the paste well up together with a big spoon or other article, and while hot pour the mountant into bottles. Wide-mouthed two-ounce bottles, with nickel-plated screw tops can be obtained from almost any chemist for a few cents each, and there will be sufficient of the paste to fill at least a dozen of them. It is better to use small bottles, as the mountant thus keeps fresher.

Slip-in mounts are somewhat of a disgrace to photography, which should be characterized by such painstaking and thoroughness, and little mention need be made of them. We will proceed, therefore, to describe the way in which mounting on plate-sunk or plain mounts can be successfully accomplished.

The question of position is one which has necessarily to be left to the photographer himself. A few years back the centre of the mount was invariably the place assigned to the print, and if a plate-sunk mount be used, this should always be the case. But if a plain card be employed the print is nowadays often stuck in one corner, more or less, though the effect cannot be said to be very charming except in rare cases. As Mr. Wall, above referred to, remarks in his "Dictionary of Photography," the mounting of a print is in many cases the making of it, and great attention should therefore be paid by amateurs to the subject.

In the case of a toned photograph—one which is of a warm color, for example—the tint or color of the mount should not present a great contrast.

Mounts are obtainable in an almost infinite variety of colors, but care should be taken in the choice of a color at all bright; a faded mount is as bad as a faded photograph. There is nothing deleterious in the gray and green mounts which are so popular, nothing which will chemically affect a silver print; but in making a substitute for a mount, *i. e.*, in choosing some card which was not expressly manufactured for the purpose, care must be exercised, so that no acidity exists in it.

The mountant being moist, it is capable of drawing up from the mount any chemical substances that the latter may contain, and also any traces of hypo that may have lodged in the paper support of the print itself. Hence there is a liability, small, undoubtedly on both sides; the impurity of a mount, the insufficient washing of a print, may either of them give rise to a fading away of the image, partial or total, after a number of years.

We must bear in mind that a mount is not necessarily composed of the purest material; cardboard is made more or less from wood-pulp, which has been bleached by means of some chemical reagent; a chemical bleacher is difficult to remove, and there are undoubtedly traces of impure chemical substances in the pulp when compressed to form the card. This is one reason for my advising the avoidance of a gelatine mountant. A jelly made with gelatine will allow substances to pass through it with the same ease as will water itself. If a little copper sulphate be placed in a beaker, and the beaker be then filled with a thick gelatine solution, or a set jelly be compressed into it, traces of blue coloration will gradually ascend upward in the jelly, indicating that the copper sulphate is rising or diffusing. Hence, a print mounted with gelatine is liable to be acted on by substances absorbed by the mountant if it gets at all damp.

Every photographer probably has his own way of mounting, but the following will be found an easy and ready method.

Take a sheet of plain paper, not blotting paper, and lay the print face upward on it; sponge it over gently with a sponge dipped in clean cold water. Then invert the print and place it face downward, in which position it will lie flat, owing to its adhering to the paper. Assuming that dextrine mounting is to be used, it should be mixed with a little water, so as to be of about the consistency of cream, and then applied with a stiff brush to the back of the print, which should also have been previously dampened with the sponge.

The print can then be peeled off and laid carefully down upon the mount in the desired position, and a piece of blotting paper placed over it, and gently pressed with the hand or rolled with a squeegee. On removing the blotting paper it will be found that a good deal of fluff, and probably some dextrine, has stuck to the face of the print. A good wipe with the sponge will remove this, however, and the mounted photograph can then be allowed to dry spontaneously.

A retouched print which has to be mounted must not, needless to say, be treated in the "wet way;" a stiff starch paste is best in this case, as it may be applied to the back of the dry print, which can then be mounted in the ordinary way. —*Focus*.

THE AGFA INTENSIFIER AND REDUCER.

BY HARRY WADE.

A DIFFICULTY in photography, besetting both novice and expert, is that of giving the absolutely correct exposure in the camera; the subjects taken and the conditions of light are so varied that really no hard-and-fast rules can be laid down as to what exposure to give. In one day we might take in brilliant sunshine a yacht with white sails on the open sea, the crowd watching the diggers on the sands, the town cross, and the interior of the old church, all of which will require exposures varying from 1.100th of a second to three hours, with the same plate and aperture of lens. It is only natural then that accidents of exposure occasionally happen, the resulting negative being either very flat or very contrasty and dense. The expert at once knows in what way to alter the conditions of his negative in order to make it perfect for printing from; not so the novice, as a rule he either does not know of a remedy, or he has heard so much of the difficulties and dangers of mixing up poisonous solutions that he leaves matters where they are, and the result is that upon looking through his album of prints we see so many flat gray pictures. The greatly extended use of the hand camera and the use of rapid developers tend to give negatives in which, while being underexposed, the rapid developer has brought out the detail, but the negative is of an actinic blue color, and thin, differing entirely from one that has received a time exposure and has been developed with pyro; this is a typical case of a negative requiring after-treatment in order to bring about the desired result. It is impossible to say how strong or how weak the perfect negative should be, but it is well known that the negatives that look the best when held in the hand do not always print the best, but this again depends entirely on the printing process. Weak negatives are best suited with gelatino-chloride and collodio-chloride paper, and by lantern slides; strong negatives by platinotype, carbon, and albumenized paper, so that if we require prints in platinotype from a negative that yields good soft prints in P.O.P. some method of intensifying the image must be resorted to, or our prints will be flat and lacking brilliancy. Negatives for intensification must be clear, that is, free from yellowness or fog; yellowness is easily removed by immersing in a bath of—

Water	10 ounces.
Alum	1 ounce.
Hydrochloric acid	½ "

and after well washing the negative is ready for the intensifying process.

Of the actual intensifying processes we have many to choose from; we can use either silver, copper, mercury, and uranium. The silver is used practically in the

wet plate process alone, copper is unstable, while mercury and uranium are those in general use; the uranium method is unsatisfactory on the score of staining the film such a deep color that printing is unnecessarily prolonged, which during the winter months is a serious drawback, the deposit also being liable to fade.

The mercurial methods of intensification can be divided into three classes: (1) The image is first bleached by the application of a certain chemical, while another chemical is employed in order to darken it again. (2) The image is darkened by the application of certain chemicals, without previous bleaching. (3) The image after being first bleached is treated after the manner of an exposed but undeveloped plate; this is called intensification by redevelopment. Let us consider the advantages and disadvantages of these methods. In the first place, the process of first bleaching the image and then darkening again is a long, tedious and roundabout method of attaining a desired result, two or three hours is not too long to wash before treating with the darkening agent; then again there is a difficulty of gauging the density of the finished negative. In order that the negative should be permanent, the bleaching should be carried on to its farthest extent, hence it stands to reason that if we immerse for only a few seconds to obtain only a slight gain of intensification we shall have a negative the image of which will be fugitive. It is also impossible to locally intensify with the double process; very often we have a negative that is strong enough in the high lights, but the detail is weak in the shadows; if we attempted to locally treat the shadows with mercury, wash and darken, we would find the result patchy on account of the difference of density the negative takes on the application of the darkening agent.

In order to make photography easy and pleasant to the ordinary amateur, the processes also should be simple and easy; the ordinary amateur as a rule does not desire to have the handling of the poisonous bichloride of mercury in bulk, also the weighing out and dissolving of it—this alone no easy matter. The process of obtaining the degree of density in one operation is so simple and easy; that it is surprising that photographers will still keep in their old groove of the double process.

Of the various processes of one-solution intensifiers the Agfa intensifier is at once simple, efficient, and economical; the intensification is complete in one operation, and requires no subsequent darkening.

It is a clear solution of strong concentration, and simply requires to be diluted with water to be ready for use. To prepare the solution for use, take one part of Agfa to ten parts of water; this can be stored in another bottle, labelling it "Intensifier, ready for use," and it will keep good until exhausted, when another solution can be made up; thus it will be seen how economical the intensifier really is. The negative is well washed to free it from all possible traces of hyposulphite of soda, it is then placed in a clean dish and the solution poured over; intensification commences at once, gradually building up the image. If only a slight gain is required, one to two minutes in the solution will be sufficient, but if a greater degree of intensification is wanted, the negative can remain for ten minutes; at the end of that time, if the film has turned slightly gray and opaque, it can be darkened in any developer; it will, however, unless the negative be very thin, be unnecessary to carry intensification to that extent. When the negative is judged to have been carried far enough, it is withdrawn from the dish and well washed for half an hour, when a negative is secured which is much more permanent than by any other method of intensification.

By using a piece of cotton-wool dipped in the solution, it is possible to locally intensify any part of a negative. In order to do this satisfactorily, the negative is first soaked in water in order to soften the film; it is then taken to the light, and draining off excess of water, the wool is dipped in the solution, and, not having it too full, is carefully dabbed over the part to be intensified, now and again giving the negative a rinse under the tap to prevent the solution from running over the other parts of the negative. This is useful to pictorial workers and others, who can build up the shadows of the negative without having to dodge with matte varnish or stump.

The Agfa intensifier is also very suitable

for lantern slides. How often is it that a slide just misses being a good one being a little too weak. A dip in the intensifier alters this, and a brilliant slide is the result; the clearness of the slide is not altered at all. The color, however, is slightly changed; a black slide turns to a warm black, while a brown slide goes a shade colder.

Weak bromide prints are also improved by a short immersion. If the print through overexposure has become gray, by well washing and immersing for about half a minute, the color changes to a black, and many a print can be saved in this manner, the whites meanwhile remain perfectly clear.

Those who make transparencies by the collodio-bromide process will also find Agfa of great use. After well washing, the plate is immersed in the same solution as for negatives, and the intensification begins immediately.

The reducer perhaps most generally used among photographers is that of the Howard-Farmer. This is a combination of ferricyanide of potash with hyposulphite of soda; it is very energetic, but it has the great disadvantage of attacking the shadow details and half-tones of the negatives before the high lights. Now this may or may not be desirable; if we have a negative dense through overdevelopment, fogged, and at the same time flat, this is a good reducer to use, as the action is that of fog clearing and reducing as well; but if on the other hand we have a negative which is correct in gradations, but at the same time is too dense, printing (especially in the winter time) taking days to secure correct depth, it will be seen that if the Howard-Farmer reducer is applied the scale of gradations will be entirely altered, the resulting print instead of being harmonious in the relations of light and shade will be strong and harsh, a result not by any means to be desired.

The chief charm of a lantern slide is its delicacy and its transparency, without having at the same time clear glass for the high lights and dense masses for shadows, and it often happens that after having developed a slide we find the gradations right, but it is a little too dense, and just requires clearing to give it the necessary sparkle. If we immerse that slide in the ferricyanide reducer, however weak, the action is just the same, the high lights are attacked, and when the slide is projected on to the screen it will be seen that the remedy is worse than before, the delicate high lights having been eaten away.

The ammonium persulphate reducer is just the opposite. This chemical has the peculiar properties of attacking the high lights of the negative first, leaving the shadow details almost untouched; this is, of course, an advantage for negatives that are hard and of great contrast, but it requires a subsequent operation, as, if simply put to wash, the reducer in the film would still continue to act, and after a while there would be little or no image left.

Now of the reducers that are for negatives of the middle grade, that is, neither hard nor soft, but of correct gradation but dense, there are two, the permanganate of potash and the Agfa reducer. The permanganate requires careful making up, as it is so energetic that it must be very weak; it also requires an after operation in order to free the negative from the yellow stain. On the other hand, the Agfa is easily made up, and the negative requires no after operation but washing. It is sold, not in solution, but in the form of a yellowish powder, readily soluble in water; it is also put up in a convenient cartridge form, which only requires to be dissolved in water in the proportion of 1 : 10.

The negative to be reduced is first soaked for a few minutes in water, in order to soften the film and to permit the reducer to act more readily, it is then placed in the reducer, and the dish well rocked in order to cause no unevenness. Reduction commences gradually, and for very dense negatives is complete in from five to ten minutes, the negative is then well washed. The reducer, either in powder or solution, must not be exposed to strong daylight for any length of time, or it will lose its power of reducing; a cupboard or cardboard case can be utilized for storing the bottle.

Lantern slides and bromide prints can also be conveniently reduced. Very often a bromide enlargement has been made which is overexposed, and consequently has gone too black in development; instead of throwing it away and making another, which means loss of time and money, it is

a very simple plan to pour over it a dilute solution of the reducer, say 1 : 40, when the print is cleared up and no staining results; bromide prints and enlargements which have not been properly vignetted can also be altered by a local application of the reducer.— *The Amateur Photographer.*

PROFESSIONAL PORTRAITURE.

BY CHARLES W. HEARN.

V. ORIGINALITY.

(Continued from page 6.)

I HAVE elsewhere in this series of papers rather discouraged too close attention to technique, as tending to divert attention from the artistic side of photography.

I would also caution my readers against too close attention to the technique of art principles, if done to the sacrifice of the portrayal of the character of our patrons. Let us not forget that we are portraitists, and strive to progress toward success as such, bringing to our aid the application of whatever art principles we may from time to time acquire, in order to round out our results. Let us not be content with a well-arranged composition if it lacks the important essential of character. This indeed is the climax of our work, and upon it depends the lasting quality of the picture. There can be no successful portraiture without character, and this quality is first in the mind of the patron.

Our greatest and strongest men and most womanly women are often as weak as children under the light, as far as ability to be themselves is concerned; and, if the operator's mind is bent solely upon the arrangement of the sitter, lighting, etc., he may neglect proper attention to this vital part of his work.

A portrait should always reveal, as far as possible, the strength of character which makes the man what he is. Do not tell a man of large affairs, with a powerful face, to "smile" or "look pleasant," for you will often make him appear foolish.

Art is beauty in some form or other, and to preserve harmony in your work the expression should be in keeping with the facial characteristics. There is no beauty in a shallow expression in the portrait of a man who has made a name for himself which has marked him among his fellows. Do not deceive yourself that such a man wants simply a pleasing expression, for he does not.

A refined woman should have proofs presented her that show refinement, and such a subject should never be posed to portray her otherwise. Women have very keen intuition and read the photographer quicker than a flash if their portraits show them other than they are.

Besides portraying your conception of the sitter's personality, taking care that it be not a superficial one, pains should be taken that it be of a pleasing nature, as likely to be more satisfactory. A man may have had a successful life in any one of the many avenues through which success is attained, and not have led a particularly noble existence, nor, for that matter, an ignoble one either. He may have an ugly physiognomy, or the strength of his face may be displeasing. Without resorting to retouching (often barbarously done) as your sole aid to softening or making it less unpleasant, various methods of lighting the model, lens work, with tact in advising various forms of expression, or interesting him in some subject which will lend animation to the eyes, will be found most successful in results. At a future time we will, under the head of "Lighting," make mention of our own and the views of others of the part which lighting plays in this respect.

Originality, as treated above, relates entirely to the photographer and his manner of handling the subject. Originality in portraiture, as well as in "studies," may also mean conceptions out of the ordinary, those unique in arrangement, or in any other of the principles of composition. It may mean originality in the various other stages after the negative is made and before the picture is finished. It is on these lines

that the young, as well as many older photographers, often err in their efforts toward obtaining something artistic. While we are all pleased to see something new and decidedly original if successful, yet too much reaching for such results, without a good idea, is fraught with great danger. We take pleasure in quoting from President Parkinson's address at the recent New England Convention: "Let us not be too imitative. I have sometimes thought, were I the jury under a prize system, I would award the victory to the youthful operator, who, though with imperfect technique and clumsy execution, had evolved something original and capable of future development, rather than to one who had produced some ever so faultless imitation."

It is often the case that operators possessed with a vague idea of what is desired to produce work that will be original and artistic reach out after the outrageous, thinking if they can obtain corkscrew poses, bizarré effects of light and shade, and a mass of heterogeneous acccessories in a picture, or by mounting the print in some peculiar way, that they have obtained what is necessary. Originality in these conceptions is successful only when a knowledge of what not to do tempers one's efforts in obtaining the unusual. Unless possessed of considerable experience in photographic technique, attended also with some degree of former success, it is well to be careful of attempting complicated experiments until your experience is such as to call to your aid the more important art principles, the absence of which would ruin a good conception.

ARRANGEMENT OR DESIGN.

The next step in "creating the picture" is the arrangement or design. It is well to mention here that from now on every part of the work bears a connecting link with every other part, and that while you are performing one thing a step is being taken toward another, and perhaps equally as important, principle in art.

There are various forms of arrangement or design in composition, which embrace and are aided in their accomplishment, not only by all the parts of the figure itself, but also the judicious handling of the clothing and drapery of the model together with other and outside accessories which should only be brought into the picture for this purpose. Nothing should be included in the picture without a definite reason for being there, either to complete the design or add strength by its inclusion. If they do not answer these purposes, leave them out.

The background, the importance and character of which have always been misunderstood and underestimated; the foreground, the massing of light and dark, and a score of other things, all assist toward a definite form of composition to which the completed picture should conform.

Avoid, however, making the form of arrangement so apparent as to give thereby undue prominence to the fact that this or that design was your scheme. Let it be felt intuitively, and when looked for especially, if not slavishly carried out, it is all the better. As you compose, see which form conditions tend toward, and let your posing, etc., incline that way. Of the various forms of composition in portraiture, the circular, elliptical, various forms of the angular, S and Z lines, etc., the most commonly understood and practised by photographers are the circular and pyramidal as a whole, and the S form in posing women's figures.

CONCENTRATION OF INTEREST.

In arranging the composition, bear in mind that everything should serve to draw attention to the most important point in the picture, which, in a portrait, is the face.

To assist in this, the principal lines should tend to this end, whereas others should be used, either as an aid to this object or as a balance to the composition. These lines may be there, whether we will or not, in which case, if objectionable, other lines are created by arrangement, either to nullify their importance or to give strength or balance as the case may be.

We take it for granted that all our readers know what is meant by lines in a picture sense. They may be briefly described a including all the lines, whether straight, curved, or angular, that emanate from the body itself or the drapery with which it is clothed, as well as from any other form or

shape used in the picture, including the accessories, background or foreground.

Of course it is taken for granted, by the nature of location, that there are some lines that may be important, which are remote from the figure itself and which are not expected especially to serve as an aid to drawing attention to the face. These, however, should be relegated to their proper position or attractiveness, or they will become too prominent, detract from the concentration of interest to the face, and form a discordant note in the arrangement.

CONTRASTS.

Contrasts are often used as an aid to the concentration of interest, to accentuate a light or dark by proximity, and when needed, the skill of the photographer can make this possible. This quality of contrast has great power in arrangement. Under the head of "Balance," the weight by attraction and size of the light and dark will be taken up, and under the heading of "Spots," their character will also be commented upon.

SUBORDINATION.

The relegating of less important objects to a proportionally less conspicuous measure of attractiveness, or subordination, is one of the most important principles of composition. It plays an ever-present part in pictorial work. Lighting is the key to its use, and, as even fair composition is impossible without it, the importance of proper lighting is readily seen in connection with subordination, as our measure of success in making less attractive undesirable parts of the subject is on a par with our ability to control the lighting to render this result. Lack of proper subordination will throw the whole composition in every part out of order as easily as clumsy handling will render all of the notes of a piano discordant.

(To be continued.)

EDITOR'S TABLE.

WE have received from C. P. GOERZ, 52 Union St., New York, a very complete catalogue of Goerz lenses, the Sector shutters, etc. The catalogue not only gives full particulars with regard to the various varieties of the double anastigmat, the sector, the Goerz-Anschutz camera and the binoculars made by this enterprising firm, but also contains many interesting illustrations, and a great deal of valuable information with regard to the choice and use of lenses and shutters. The book is a distinct addition to the photographer's reference library, and we can only urge that our readers should endeavor to secure a copy of this catalogue as offering direct help in their photographic work.

AMONG the things most frequently asked for by the photographer is an advertising booklet for general distribution, somewhat similar to the well-known *Hints to Sitters*, issued by this MAGAZINE some years ago, and long since out of print and out of date. We have been unable to meet this demand simply because there was no such little book obtainable except by special order. The cost of a booklet specially written for any one studio is, of course, much greater than the other method of using a booklet ready made.

We are glad to announce that Mr. W. I. SCANDLIN, of Brooklyn, N. Y., has prepared a studio booklet which very cleverly meets the need above mentioned. It is entitled *Modern Portraiture by Photography, including Suggestions of Interest and Value to Sitters.* Eight pages and cover, 6 x 2¾ inches. The text is carefully prepared to advise the prospective sitter and to persuade business. The typographical arrangement and appearance of the booklet are extremely neat and tasteful. It is adapted for the needs of any studio claiming to turn out good work, and its distribution can hardly fail to be productive of the best results.

The booklet can be obtained in quantities at a very reasonable price, and we understand that Mr. Scandlin is willing to allow those who apply early the exclusive use of the booklet in their own town. We are sure that his enterprise will meet with the wide appreciation which it so well deserves.

THE Illinois College of Photography reports a very much enlarged class with the beginning of the new year, and the new Bissell College of Photo-engraving, just opened, has also brought many new students to the College. The College of Photo-engraving is meeting with a good deal of encouragement, and would seem to fill a proverbial "long-felt want."

"PHOTOS" is the name of a new photographic journal which comes to us from MENDES LEON & CO., Saragoza, Spain.

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WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. MARCH, 1904. No. 567.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

VII. FORM LETTERS.

WHAT are form letters and what purpose do they serve in the economy of a photographic studio? This question seems to be a pertinent one, as there are many photographers about the country who do not apparently know what the words "Form Letters" signify. Many seem to possess the idea that they are something admirably suited to the needs and requirements of some other man's studio, but are unable to grasp the possibility of their being fitted to profitable use in their own.

No greater mistake can be made than to suppose that form letters are fitted to any one locality, class of trade or kind of business, to the exclusion of others. A form letter, properly constructed and sent out through the mails in the proper way, should appear exactly like a personal letter to the recipient. It should deal directly and forcefully with the question or questions under consideration. It should build up a logical argument for the photographer, and when the reader follows it down to and including the fac-simile autograph of the sender, he should be impressed with the idea that it *is* a personal letter addressed to himself, written to himself, full of suggestions and argument to himself, and matter in which he and the photographer personally are the only ones interested. Such form letters can be made and are made every day in the year, and they bring to their users, in the aggregate, in the United States, probably more money in dollars in the course of a year than the income of all the photographic studios during the same time measured in cents.

It is because a form letter has this personal appearance that it possesses the pulling power that has always attached to it. A modern form letter is prepared in such a way as to be, in a sense, general, while at the same time, by the addition of the name and address of the party to whom it is sent, it takes on a direct and personal interest. Such a letter may be printed to look almost exactly as if it were written upon a typewriting machine. The signature of the sender may be printed from an autograph plate in fac-simile, and the name of the addressee be written at its top on the type writer in a type exactly matching the body of the letter, and in a color that corresponds perfectly thereto. The envelope addressed in the same way, and the letter sealed and mailed under a two-cent postage, reaches its destination, and in ninety-nine

cases out of a hundred impresses the party who receives it as a personal, typewritten, individually signed communication. Is it to be wondered at that such a letter receives a greater amount of attention than a circular, folder, or printed announcement? People are, as a rule, inclined to be flattered by the attention involved in a written communication of this kind, and letters of this nature appeal to the inhabitants of small towns or rural districts with as much or more force than in the larger cities where their receipt is more frequent; and it therefore possesses an influence of no small moment in such communities.

Why is such a communication called a form letter? Simply because five hundred or a thousand, more or less, may be printed from the same form, quickly and cheaply, each being an exact counterpart of the other in every respect. This is the only thing that separates the form letter from a personally written document, and to the ordinary recipient the difference is never known. Its value as a business bringer when compared with its cost of production can hardly be overestimated. The returns from it in every business where it is used—and where can a business be found that does not employ it?—are traceable to the homes and offices of all classes and conditions in the community. By means of such a letter the photographer or business man in any line may present his story to the leaders of fashionable society in his community, to the wives and daughters of the prominent men, and to the influential citizens themselves, feeling sure that in a large majority of cases such a letter, if properly constructed, will be read and its contents absorbed before it becomes apparent that it is of an advertising nature.

It goes without saying that the stationery on which these letters are produced should be of a fairly good quality, and that there should be nothing in the letter to suggest a thought that would antagonize the most fastidious reader. If the general subject of photography be taken up for the first letter of a series, a few short sentences should be devoted to its importance in the family circle; to the facilities possessed by the studio from which the letter emanates; closing with a short statement bearing upon the desire that the addressee avail himself or herself of the advantages of the studio when next in town; the object of the first form letter should be accomplished. It must not be very long; should err on the side of brevity rather than of length, and should aim solely to create an interest in the quality of the work produced by the studio in question and its direct value in the economy of every household. Suppose a photographer in a small town selects a list of five hundred names for a trial of the form letter plan, representing the well-to-do farmers in the country round about; the prosperous business and professional men within the limits of the town itself, together with such other men and women of social standing in the community as he would desire to have upon his books. His first step should be to write or have written such a letter, and to have it printed as above outlined, with his signature printed in black at the same time that the letter heads were printed. The body of the letter may be in purple, blue or green, as the case may be. He next, if he possesses a typewriter, will have written in the names of all the parties represented in his list. If he does not possess a typewriter, he should send the list to the party preparing the letter, and let them be addressed before delivery to himself. In either case he must be careful to submit a sample of the work of his machine, if there is one in his studio, to the parties printing the letter, so that the type of the text may match the type used in addressing. Once the five hundred names are written in, and the envelopes properly addressed in full, they should be sealed and mailed to the entire list under full letter postage. Results may then be awaited for a while with interest and without too much hopefulness.

This is but the first step in the plan, and the second is like unto it, inasmuch as it means going over the same list with a second letter printed in the same way as the first, but written with a stronger hand and a firmer touch, getting more nearly to a concrete proposition; some line of work adapted to a special season; some new and popular style of print or mount, or something that will carry the story introduced by the first letter one stage farther, with the idea of building up a desire to

become acquainted at least with the output of the studio. This will, in its turn, be followed after an interval of some weeks by a third letter, and after these have all gone out the ground should be carefully surveyed before further operations. Records should, of course, be kept upon a general list, or a card index, which is better still, of all results traceable in any way to this form letter campaign. With each inquiry and each order that comes from it entry should be made upon the proper card, and all these records should from time to time be scrutinized, and the business resulting from the letters analyzed and tabulated. All this may sound as if it meant a lot of clerical work, but it is not so. The keeping of a list of five hundred names should be so simple in the hands of any photographer as not to require the addition of a single extra hand or an hour of overtime work. He will probably find, if such a course is started, that the results traceable to the first letter will be greatly disappointing; the second will, however, wake things up to a considerable degree, while, under the usual conditions, the third letter will produce the best result of all. This advertising has the double advantage of carrying a personal element on its face, and has embodied in it that most necessary attribute of all good advertising, persistency.

If in the minds of the readers of this article there is any question as to the efficacy of the form letter in other lines of business, they have only to inquire of the various library bureaus and manufacturers of card indexes of all kinds for a hearty endorsement of the writer's belief expressed above. If having found this endorsement they doubt its profitable application to their own business, let them pattern after a number of their more successful brethren who have long since become converted to its advantages, and who are using it regularly in their own business and to their material benefit.

THE USE OF PYROGALLIC ACID.

BY CHAPMAN JONES.

It may seem a little strange that pyrogallic acid, one of the very few developers used from the first in photography, should still remain the standard in spite of the innumerable other developing agents that have since been introduced. We used to be told that ferrous oxalate ought to and doubtless would in time take its place, but ferrous oxalate itself has practically disappeared as a developer for negatives. Many of the new alkaline developers have been introduced as if their advent was the sign that pyrogallic acid was about to be supplanted; but it still remains, and it is considered by many not to be equalled by any other reagent.

Pyrogallic acid is not without its disadvantages. It stains the fingers perhaps more than any other developer, but this may be largely obviated by a little care, or the use of finger-stalls, or the application of some of the toilet preparations, such as lanoline, now so well known. Sometimes it stains the negatives, but this it never ought to do, and never will do if properly employed, as subsequently shown. It is stated to be not so permanent in solution as some other developers. This certainly is true; but if not mixed with alkali, solutions can be prepared that will last in good condition for more than a year, so that it does not suffer much in this matter. But every disadvantage, imaginary or real, that can be urged against pyrogallic acid is additional proof of its superiority in other directions, for it remains the developer of many photographers of large experience, while others who avail themselves of the advantages of the newer developers use pyro for all important or valuable negatives.

Pyrogallic Acid Itself. The photographer has now the opportunity of choosing between the time-honored feathery crystals produced by sublimation and the more compact crystals produced from solution. Each form has distinctive advantages of its own. The sublimed acid dissolves almost immediately it comes into contact with water, and the method of its preparation is a considerable guarantee of its purity.

The more compact variety is far less bulky, rather more easy to weigh out, and not so likely to get blown about and produce black specks on negatives by settling on the plates. The "crystals" of various brands are of remarkable purity, and therefore very uniform in their action. Those who develop only occasionally, like most amateurs, should keep their pyro solid, or prepare only enough solution for the day's use. A stock solution may be made usefully permanent by *slightly* acidifying it with nitric or citric acid, and if the weight of either is less than about one-twentieth of the pyro, and much less than this quantity of nitric acid will be found efficient, the effect of the acid in neutralizing the alkali added for development will be negligible. A quarter to half a drop of pure nitric acid, or five or six grains of citric acid, may be used to each ounce of solution. Probably the best preservative is the metabisulphite of potassium. Of this, from one and a half to five grains per ounce of solution is generally recommended. A good average formula for an approximately 10 per cent. solution is:

Potassium Metabisulphite	36 grains.
Water to	9 fluidounces.
When dissolved add Pyrogallol	1 ounce.

The acidity of this quantity of metabisulphite may be disregarded in the developer unless it is required to be only *very* slightly alkaline; then it will be useful to know that potassium metabisulphite requires a little over twice its weight of crystallized sodium carbonate to neutralize its acidity. The exact amount cannot be stated because of the production of bicarbonate.

Sodium Sulphite. While purity of chemicals is desirable in every case, essential indeed for certainty of result, it is particularly necessary to get a good sodium sulphite, because this substance is specially liable to be impure. It is best to get a good sample from a well-known manufacturer, and to buy the unopened bottle or package as issued by him, not an ounce or two that the local dealer has to weigh out. It is an error to suppose that the quality of a sample can be told merely by its appearance. A *perfectly* good sample would look good, but a little whiteness on the surface of some of the crystals is not sufficient to condemn it; indeed, such a sample may be superior to another that looks clearer. Sodium sulphite is comparatively permanent, either in the solid form or in solution, if care is taken in its preservation. If the bottle that contains the solid is kept well corked, and small remainders that have been a few weeks in nearly empty bottles are rejected, there is little to fear from deterioration. A 25 per cent. solution will keep in good condition for many months if the bottles containing it are full, and closed with good corks or India-rubber stoppers. A 50 per cent. solution may be satisfactorily prepared by warming, but in cold winter weather some of the salt is liable to crystallize out.

It is important to notice that the amount of sulphite used should be proportioned to the total bulk of developer, and not to the pyro as is often recommended. For sodium carbonate, twenty grains per ounce; for ammonia, seven or eight grains per ounce, will be found about right. If the solution darkens appreciably during development, more sulphite should be used next time, and it will darken with the quantities named if the development is usually prolonged, or the amount of alkali added is exceptionally great.

Alkalies. Of these there is little to be said, except that they should be of good quality. "Washing soda" should not be used, as it is not pure and not uniform; the effect of the same weight at different times will therefore vary. Crystallized sodium carbonate that is practically pure is easily obtainable. One ounce dissolved and made up to nine fluidounces will give 10 per cent. solutions, and these are convenient. Of ammonia, one fluidounce of the strongest should be diluted up to ten fluidounces for use.

Other chemicals do not call for special remark, except that they should be obtained from a reputable firm, that they may be of reliable quality; 10 per cent. solutions are convenient.

Pyro-soda. Cautious Development. The method of development that we recommend beginners to follow, and, indeed, other photographers, when dealing with large or important plates, is to so arrange that development is slow, requiring from about fifteen to twenty or even thirty

minutes for its completion. If one is judging density by inspection, there is then plenty of time to observe it, and the image does not grow too dense during the rinsing before fixing. If the "time" method is preferred, the times to be observed are appreciable, and an error of a few seconds or even a minute is hardly noticeable. If the developer does not cover the plate quite evenly at first, there is time to remedy the irregularity before it has produced a perceptible effect; and there are other advantages of comparatively slow development that need not be enumerated. Take of:

	Solids.	Solutions before recommended.
Pyrogallic Acid . .	2 gr.	
Sodium Sulphite (cryst.) .	20 "	80 min.
Potassium Bromide . .	½ "	5 "
Sodium Carbon. (cryst.) .	6 "	60 "
Water, add to a total bulk of . . .	.....	1 oz.

The quantities given are multiplied by the number of ounces required. This, as all other similar solutions containing pyrogallic acid, will become brownish by exposure to the air more quickly if more water is added to it than when undiluted. If, therefore, it is desired to dilute it, more sulphite should be added so that the proportion of approximately twenty grains to the ounce is maintained.

Pyro-soda. Rapid Development. The professional portrait photographer and the hand camera worker who has many plates to develop, all of a somewhat similar character, requires a more rapid method of work than that just described. There is a little more chance of error, but with practice only a little, and this is worth incurring for the sake of the time saved. To quicken development, increase the alkali to about four times, and as this will tend to make the developer dark more quickly by exposure to the air, the sulphite may be increased a little. The pyro also may be increased or the negatives will tend perhaps to be too soft.

	Solids.	Solutions before recommended.
Pyrogallic Acid . .	3 gr.	
Sodium Sulphite (cryst.) .	25 "	100 min.
Potassium Bromide . .	½ "	5 "
Sodium Carbon. (cryst.) .	24 "	4 dr.
Water, add to a total bulk of . . .	.....	1 oz.

This will serve as a type of pyro-soda developer generally recommended by platemakers, and will be found to give excellent results.

Those who prefer to have two solutions already prepared, to be mixed in equal bulks for use, may make them up according to the following formula:

A.—Pyrogallic Acid . . .	1 oz 40 gr.
Sodium Sulphite (cryst.) .	9 ounces.
Potassium Metabisulphite .	48 grains.
Water to	80 ounces.
B.—Sodium Carbonate (cryst.) .	9 ounces.
Potassium Bromide . . .	80 grains.
Water to	80 ounces.

Equal parts of A and B to be mixed for use. This is very similar to the preceding formula, the potassium metabisulphite being introduced to preserve the pyrogallic acid better. Eighty ounces is the capacity of a "Winchester quart," and therefore a convenient bulk to prepare.

Other Alkalies. Potassium carbonate is now rarely used, because it does not appear to have any advantage over sodium carbonate, and it is more costly and not so easy to obtain and keep in good condition. Moreover it appears to soften the gelatine more than the sodium salt. If used, the whole or a part of the sodium carbonate may be replaced by about half its weight, or rather less of potassium carbonate.

Ammonia also is not often used, because it is less certain in its action than sodium carbonate; it volatilizes, and its solutions therefore lose strength, and it tends to stain, presumably because it is a solvent (though a poor one) of silver bromide. It may replace the sodium carbonate, using from one to four minims of the strongest ammonia (ten to forty minims when diluted to one in ten) to each ounce of developer, reducing the sodium sulphite, as already stated, to about one-third of the amount.

Edwards' Redeveloper. Mr. B. J. Edwards many years ago suggested the use of a very highly restrained developer in cases of overexposure, to take the place of the normal developer as soon as the overexposure was manifest by the image flashing up. By using exposure meters, such treatment should never be necessary, but it may be useful to give the formula, and it serves also to indicate the maximum

amounts of the various ingredients that are practically serviceable:

A.—Pyrogallic Acid	1 ounce.
Sodium Metabisulphite	1 "
Water to	28 ounces.
B.—Sodium Carbonate (cryst.)	9 ounces.
Potassium Bromide	2 "
Water to	28 "

For use, mix equal bulks of A and B. The solution ready for use contains:

Pyrogallic Acid	8 grains.
Sodium Metabisulphite	8 "
Potassium Bromide	16 "
Sodium Carbonate (cryst.)	72 "
Water to	1 ounce.

This solution is so highly restrained that it will hardly develop detail, but it will allow the development of the image that has already appeared to continue. The eight grains of metabisulphite may be replaced by about thirty grains of the ordinary sodium sulphite if it is not desired to keep the solution before use.

Other Variations. The formulæ already given may be regarded as typical, and are susceptible of variation in many ways. Indeed, one of the chief advantages of pyrogallic acid has over some other developing agents is its adaptability to various conditions. It is not unusual to omit the bromide, but this must be done with discretion. With no bromide some plates will require less exposure, but probably the difference has been rather exaggerated. The fact that a plate will develop clean without bromide added to the developer is not a sure sign of the superior quality of the plate, because there may be some alkaline bromide in the film. And immediately development commences, alkaline bromide is formed and dissolved in the developer, and it increases in quantity as development proceeds.

Acetone may be used instead of alkali, its reaction with the sodium sulphite providing the required alkali as it is needed. It is recommended to dissolve one part of pyrogallic acid and ten parts of crystallized sodium sulphite in one hundred parts of water, and to add acetone as required up to ten parts. The action of this developer is similar to that of pyro-soda.

Tribasic sodium phosphate, to the extent of from eight to twelve grains per ounce, may be used instead of other alkali, but its advantage is not particularly obvious.

Lantern Slides. Pyrogallic acid is particularly suitable for the development of lantern slides. An excellent formula is due to Messrs. Thomas & Co.:

Pyrogallic Acid	1 ounce.
Sodium Sulphite (cryst.)	3 ounces.
Citric Acid	¼ ounce.
Water to	10 ounces.

Ten per cent. solutions of ammonium bromide and of ammonia are also required. A mixture of thirty minims of each of these three solutions, diluted to two ounces, gives a developer that will produce a black or a warm black according to the exposure. By further increasing the exposure and also the bromide the color of the image becomes a warmer brown. Mr. John A. Hodges recommends as a useful developer for a pleasing warm color the following formula:

Pyrogallic Acid	1 grain.
Sodium Sulphite (cryst.)	12 grains.
Citric Acid	1 grain.
Ammonium Bromide	¼ "
Water to	1 ounce.

With as much ammonia added as will cause development to start in one minute and finish in ten.

Bromide Paper. Pyro-acetone gives with many brands of bromide paper very agreeable brown colors. Messrs. Cadett & Neall have published the following formula:

A.—Pyrogallic Acid	22 gr.	or 50 grm.
Sodium Sulphite	130 "	" 300 "
Sulphuric Acid	3 min.	" 6 c.c.
Water to	1 oz.	" 4000 "
B.—Acetone	1 volume.	
Water to make	20 volumes.	

Use equal measures of A and B. The color may be further modified by increasing the acetone.

Fixing and Washing. As solutions of pyrogallic acid containing a sulphite darken more readily on exposure to the air when diluted, because the dilution reduces the proportion of sulphite, it is not advisable to wash much after development and before fixing. Pyrogallic acid is not exceptional in this, for the same principle applies to other alkaline developers. The plate may be just rinsed to remove adherent solution from its surface, and at once put into the

fixing bath. The writer distinctly prefers an alkaline fixing bath containing sodium sulphite.

Sodium Hyposulphite . .	1 pound.
Sodium Sulphite . . .	1 ounce.
Sodium Carbonate . . .	¼ "
Water to	80 ounces.

This not only fixes but washes out the remainder of the developer without allowing it to stain the plate. It must not be supposed that such a procedure is *necessary* to prevent staining, but while fixing thoroughly and calling for no extra trouble or attention, it makes staining still less possible than the method more usually prescribed. After fixing, the plate should be thoroughly washed.—*The Amateur Photographer.*

THE MODERN PRINTING-ROOM.

BY A. J. JARMAN.

THE conducting of a photographic business to-day must be carried out on very different lines from those which answered the purpose only a few years ago. The beautiful specimens of photography which are to be seen to-day in our prominent photographic establishments, the expensive furniture, carpets, and drapery, the elegant reception and dressing-rooms, with their polite and attractive attendants, all lead to the inference that the department where the pictures and portraits are *actually produced* is all in accordance with the well-appointed studio in which the negative was made, and in keeping with the other departments of the establishment. Unfortunately, this is not always the case. It is only too well known to professional printers that there is not a more neglected department in a photographic establishment than that in which the printing has to be done.

Very few modern photographic establishments are fitted with all the necessary utensils, tools, etc., for the carrying out of real good work. There exist in New York to-day printing departments where the whole of the printing must be carried out upon the house-tops, in all kinds of weather, at times ankle deep in snow, with no protection. The printing frames—sometimes to as many as three hundred—have to be carried up one flight of stairs, and when printed carried down again, thus making the work of the printer unusually laborious. The workbenches and tables are all variable in height, with trimming glasses cut from discarded negatives, thus giving the utmost inconvenience to the man who has most of the hardest work to perform. This method of conducting a printing department may have answered its purpose forty years ago. It would seem incredible that such an antiquated and primitive method could exist or be tolerated by any firm of good standing to-day, but such is the case. With such poor equipment it is not possible to turn out work of a high-class quality except under the most laborious conditions.

When prints have to be produced in large numbers, such a printing department offers every obstacle for rapid working, and the proprietors of such establishments cannot too soon alter such antiquated makeshifts if they desire to increase their output and equal their rivals in trade. An increase of business demands increased facilities to meet the demand. It is, therefore, for their welfare and benefit that the printing department should be thoroughly equipped with every necessary and modern appliance for turning out prints of every kind, of the highest quality, and with rapidity.

The modern printing department should possess the facility of printing under cover as well as in the open. All operations should be carried out upon the same floor level, and arrangements made to keep the work-rooms conveniently warm during the winter, without the use of gas stoves burning in the open. The products of combustion from stoves are injurious to every kind of photographic printing material, as well as being dangerous to the health of the work-people.

At the present time in many printing

departments there is no uniform plan for the cutting up of the sensitive paper from the roll, no matter whether it be platinum or any of the printing-out papers, and the fitting of the printing frames as well as the adjustment of the paper are usually carried out in a way that involves considerable labor.

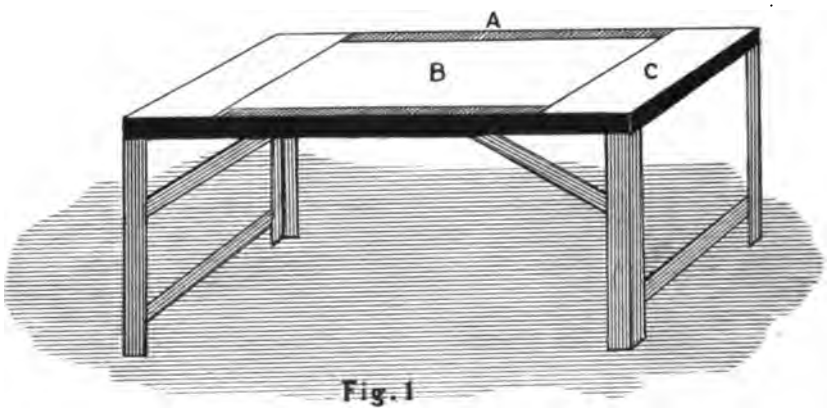

Fig. 1

The workbench or table here described is one that will facilitate the work of cutting up the paper and the fitting in of the printing frames. In Fig. 1, A shows the table in a tilted position with a piece of thick plate-glass in a recess at the top, B, with a yard-stick also inserted and made level with the surface of the glass at the top and bottom. All that is required in cutting up the paper is to place the roll at the left hand side, draw the end of the paper over to C, stand a glass letter-weight upon this end, place a straight edge across the paper adjusted to the length required to be cut (which is easily done by the measurements at the top and bottom of the glass plate), then draw a sharp knife across, when the paper becomes severed; place the paper around for the cross cut, and if the paper has been cut 12 inches from the roll, the reverse cut being made at 10 inches, the piece of cut paper will be 10 x 12. This operation is carried out more quickly than it can be described. By this means any number of pieces of paper can be cut to any size, true and even.

The same table can be used for filling in the printing frames by use of a mirror or a sheet of cardboard placed at an angle of forty-five degrees, so as to reflect the light through the glass plate in the top of the table, and shown in Fig. 2 at E, D being an end view of the table, an electric lamp being shown at F. Any source of light may be used, provided it is of a pale yellow tint when reflected through the glass plate, a mirror being best suited, covered over with a sheet of thin yellow glass. The printing frame is placed upon the sheet of glass with the negative inserted. The light now shows through the negative and enables the paper to be adjusted without lifting the frame up to any other source of light, which is usually done for adjustment. It will be seen that the size of the printing frame will prove to be no obstacle

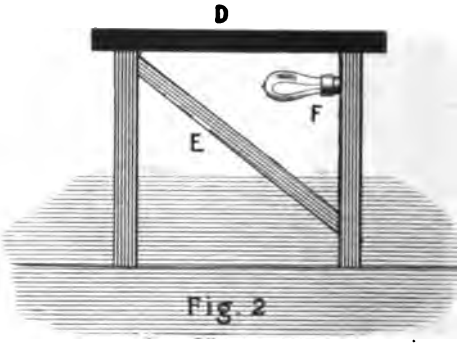

Fig. 2

in adopting this form of workbench. An ordinary table is not a desirable thing to have in a modern printing department; it is too low, being only two feet six inches high, while an ordinary workbench is three feet high, which is more convenient when standing at the regular work.

The modern printing department has to meet the demands very often of two or three studios, therefore every labor-saving appliance should be adopted to permit a large number of prints being turned out in the shortest possible time and with the least amount of labor. With such appliances, and the labor rightly divided, all these requirements can be accomplished. The outlay for a well-equipped printing-room will not surpass that of the studio, and when it is taken into account that all the finishing of work is carried out here, and the very product upon which the photographer depends to increase his reputation and his bank account, there should be at least as much attention paid to this department as will ensure that nothing is wanting to make it complete and enable it to cope with the maximum of work possible for the firm to turn out.

METOL-HYDROCHINON FOR BROMIDE AND GASLIGHT PAPERS.

BY A. K. BOURSAULT.

WHILE amidol, eikonogen, rodinal, edinol, etc., have been widely advocated for the development of gaslight and of bromide papers, the instructions coming with each package of paper and which evidently represent the choice of the manufacturer are overwhelmingly in favor of a mixture of metol and hydrochinon.

The results obtained with this developer are more reliable, and, on the whole, as perfect as those obtained with any other agent. It is inexpensive to make up; keeps better than other developers of its class. Modifications are easily made to suit all brands of papers. The color of the deposit is readily modified to suit the most versatile tastes, and the range of tonalities obtainable is longer than that which can be produced by the use of any other developer. Besides, it is inexpensive and requires but such chemicals as are conveniently obtained everywhere. In spite of all these advantages there is a shadow side to this excellent developer. The very quality of being simple in its composition and inexpensive has led many manufacturers, and especially some of the chemical firms who prepare M. Q. tubes for jobbers and retail dealers, to alter its normal proportion beyond all measure, sacrificing the quality of the results for the sake of lowering prices. The competition and cutting down business have been very keen in this line, and as a result the market is being swept by a host of M. Q. tubes, nameless mixtures, irrationally compounded, and which have none of the qualities referred to a moment ago.

For a normal metol-hydrochinon developer for bromide paper the hydrochinon should not be in excess; and this is precisely the case with the cheaper M. Q. tubes. As hydrochinon is much less expensive than metol, the manufacturers decrease the amount of the latter, and increase that of the former beyond all proportions. The writer has analyzed tubes of that kind where the proportion of hydrochinon to metol was as high as ten to one (even as high as twelve to one in one case).

Is it to be wondered at if under those conditions the results are not satisfactory?

Except for special purposes (colored prints) the amount of hydrochinon should never exceed that of metol used. Half of each gives the most powerful and fastest developer. It is evident, however, that to give the best results these proportions will have to be slightly modified to suit the brand of paper adopted. With most of them twice as much metol as of hydrochinon will give by far the finest prints. The following developer is excellent for nearly all brands of paper on the market.

A.—Metol	50 grains.
Hydrochinon	25 "
Sulphite Soda (Anhydrous)	½ ounce.
Or Crystals	1 ounce.
Water up to	20 ounces.
B.—Sodium Carbonate (Crystals)	½ ounce.
Potassium Bromide	20-30 grains.
Water up to	20 ounces.

Take equal quantities of A and B for bromide paper.

For gaslight papers reduce the amount of water one-half and the amount of bromide of potassium as much as possible, until just enough is left to prevent fogging. It is, unfortunately, not possible to specify the exact quantity, as various brands of paper are vastly different in that respect, and, besides, that amount depends also largely on the age of the paper, its state of conservation, the quality of the water employed, and many other minor circumstances which it is impossible to enumerate and consider here singly. For certain papers the amount of sal soda had also better be increased to one ounce. For carbon velox, for instance, the formulæ, modified as follows, will produce results that will leave nothing to be desired:

A.—Metol	50 grains.
Hydrochinon	25 "
Soda Sulphite (Anhydrous)	½ ounce.
Or Crystals	1 "
Water up to	10 ounces.
B.—Sodium Carbonate (Crystals)	1 ounce.
Potassium Bromide	1 grain.
Water up to	10 ounces.

Take equal parts of A and B and add as much of a 10 per cent. solution of potassium bromide as is necessary to keep the whites clear, or as is wanted to alter with increased development the color of the deposit.

It is sometimes advisable when particularly soft gradation, delicacy in the high lights and transparency in shadows are desired, or when hard contrasty negatives are met with, to still further reduce the hydrochinon or even dominate it altogether. Again, metol alone in bad cases of over- or underexposure will permit of forcing development to a degree of which an adjunctive of hydrochinon will not allow. Many careful workers will thus find that besides the developer given previously, it is a good plan to have on the shelf a single-solution metol developer which will prove exceedingly handy should occasion require. The formula runs thus:

Metol	50 grains.
Sodium Sulphite (Anhydrous)	½ ounce.
Or Crystals	1 "
Sodium Carbonate (Crystals)	1 "
Potassium Bromide	2-4 grains.
Water up to	20 ounces.

But for all ordinary purposes and for general use in the printing-room, I do not think anything can beat the formulæ given previously.

When strongly colored results are wanted, up to red chalk with the slower papers, the hydrochinon is then, but then only, slightly increased and the amount of sulphite diminished. Our formulæ would, for instance, become:

	No. 1.	No. 2.
A.—Hydrochinon	60 gr.	or 50 gr.
Metol	90 "	" 25 "
Soda Sulphite (Anhydrous)	100 "	" 100 "
Water	10 oz.	" 10 oz.
B.—Sodium Carbonate (Crystals)	1 ounce.	
Potassium Bromide	5-10 grains.	
Water	10 ounces.	

A, No. 1, contains the largest amount of hydrochinon desirable, and we repeat it only in such cases when decided colored results are aimed at. Hydrochinon has, unfortunately, the tendency to fill up the detail in the shadows of the prints, and while it is desirable to have some in an M. Q. developer to give body to the print, too much of it will cause the loss of their transparency, so desirable a quality, and so easily obtainable by a sufficient amount of metol in the developer.

I am confident that those of my readers who will kindly give the preceding formulæ a serious trial will find it difficult afterward to feel satisfied with some of the ordinary M. Q. compounds on the market.

A RELIABLE SILVER INTENSIFIER FOR GELATINE AND OTHER NEGATIVES.

BY A. J. JARMAN.

THE development of gelatine dry plates during the cold season of the year is not always productive of the full-bodied negative which is produced when the temperature of the surrounding atmosphere is higher. The exposure of the plate may be correct, but if the temperature of the developer has been low the result is a thin

and very unsatisfactory negative. This kind of negative is not produced by the amateur photographer alone; it is produced in large numbers by the professional photographer. Resort then is made to the use of a mercurial intensifier, which often robs the negative of many of its excellent qualities. It is well known and understood by the professional printer that a good, rich platinum print cannot be produced from this particular class of negatives. Many intensifiers have been proposed and used for the intensification of weak gelatine negatives, the most prominent among them being various preparations of mercury. The intensifier about to be described is one in which the salts of silver replace the salts of mercury, and in the writer's hands has produced excellent results either with a weak gelatine or a collodion negative. In fact the negative may be ever so thin and ghostly in character, a good full-bodied negative can be made by the use of this intensifier, the formula for which will be given here.

Prepare the following solution, using distilled water throughout the operation:

No. 1.

Nitrate of Silver . . .	200 grains.
Distilled Water . . .	8 ounces.

Allow the nitrate of silver to become entirely dissolved.

No. 2.

Sulphocyanide of Ammonium	480 grains.

Add this to the nitrate of silver solution and shake well; it will be seen that a precipitate of the sulphocyanide of silver is formed. Upon shaking until all the sulphocyanide of ammonium has been dissolved it will be seen that the precipitate has also become dissolved. Distilled water must now be added to make up the quantity to twenty ounces. It will now be noticed that the precipitate has reappeared. A concentrated solution of hyposulphate of soda must be made and ready to hand; add a little of this strong hypo solution to the silver solution, shaking well between each addition until the precipitate has become dissolved. This mixture should now be filtered through absorbent cotton, and marked stock solution A. Another solution must now be made up of the following ingredients:

B.

Pyrogallic Acid . . .	6 grains.
Sulphite of Soda . . .	24 "
Bromide of Potassium . .	4 "

Dissolve in two ounces of distilled water. To intensify take the negative it is desired to intensify and wash it well in a stream of running water from a faucet, taking care to wipe the face of the negative well with a tuft of absorbent cotton, so that every trace of the finger marks has been removed. Too much stress cannot be laid upon this, because the salts contained in the mixture that exudes from the fingers will affect that part of the plate, and prevent uniformity of action. Of course, if the negative has been retouched, all the traces of the retouching medium and black lead-pencil must be removed by rubbing the surface well over with a little spirit of turpentine or benzine, and cleaned off with a piece of absorbent cotton, when it will be ready for treatment. The negative must now be placed in a clean tray, say 6½ by 8½.

Take one fluidounce of stock solution A, add thereto two fluidounces of B, to which must be added twelve drops of liquid ammonia (stronger water ammonia). Mix well, then pour over the plate in one sweep; rock the tray gently, and watch the result. Gradually the negative will gain in density until it becomes as much like a well developed plate as it is possible to be. The process may be hastened by adding a few drops more of water ammonia, but it is not advisable to add too much of this alkali. The whole operation can be performed in about five minutes, when the plate may be removed, well washed and dried.

There has always been and there still is doubt in the mind of the photographer as to the permanency of a negative when intensified with a mercurial preparation, and should the negative be a valuable one, oftentimes there is some hesitation as to whether it shall be intensified or not.

The photographer has greater faith in the use of silver as an intensifier in place of mercury, because he knows that it is a silver compound that forms the actual negative; and, further, that where silver intensification was used (and is still used) for the collodion process, the result was permanent. Although a solution of chloro-

platinate of potassium can be used for the intensification of negatives, and the results can be depended upon for permanency, the one great drawback to the use of this preparation is its high cost. This objection cannot be urged against the use of silver, and there is but little trouble involved in the preparation of the silver intensifier that has been described. It will well repay those who undertake its use, and often save a valuable negative that would otherwise prove useless. It is applicable to every kind of negative, whether a landscape, marine view, a copy or direct portrait, and equally good for dry collodion plates as well as gelatine.

THE GELATINO-CHLORIDE PRINTING-OUT PROCESS.

BY H. W. BENNETT.

THE series of practical demonstrations instituted by the Royal Photographic Society is likely to prove a very successful feature, judging by the attendance and the amount of interest shown at the first of the demonstrations. Mr. Henry W. Bennett, ignoring the fact that his "elementary" audience was leavened by a large proportion of expert workers, kept to the original programme and gave a discourse upon gelatine print-out paper printing, with a demonstration of the toning and fixing operations. Mr. J. T. Ashby, member of Council, was in the chair, and explained the wish of the Council to provide practical instruction in photography as well as the theoretical instruction covered by the papers ordinarily read before the Society. He thought that photography had reason to thank print-out paper; without it many of them would never have become confirmed photographers. It was, on the whole, the ease of working this process which seduced many of them into their lasting connection with photography. The process had some reputation for impermanence, but Mr. Bennett would tell them that a large amount of permanence may be given to such prints, and personally he had no doubt that nobody would go away without picking up much practical and profitable information.

ADVANTAGES AND DISADVANTAGES.

Mr. H. W. Bennett said that most photographers instinctively took up print-out paper in their early days, and it was with a view to advising the beginners amongst them that he had been asked to give that demonstration. The papers he would use had a glossy surface, but matt papers could be worked in the same manner. One charm about print-out paper was its visible image. It gave one something tangible, at every stage of the process, as compared with the invisible and semi-invisible images of the carbon and platinum processes. With reasonable care, it was a process which was under control at all its stages. Another advantage was in the fact that if one's negatives were at all defective the process enabled one, in most cases, to make the best of them, when other processes would give nothing but failures. A disadvantage was its inferior claims to permanence. This might be an advantage in the case of much of the early work of beginners; but, when they had advanced beyond that stage, want of permanence was a serious consideration. For pictorial work print-out paper did not lend itself well on account of its tones, which lay between red and blue; hence it was often abandoned for other processes, which gave more suitable colors, as soon as the worker had advanced beyond the earliest stages of photography.

CHOICE OF NEGATIVE.

The first consideration, when taking up a printing process, was the type of negative necessary to obtain the best results by that process. Such a negative it was difficult to describe. It should not be unduly dense for print-out paper, and the shadows should be reasonably clear. A practical illustration was given by the exhibition of a negative which would give a good rich print in silver. It should be much thinner than a carbon negative, and that was an

objection to silver printing that should be weighed by all serious workers. Such a necessity was troublesome if the photographer wished to make his negative useful for other processes. The real test was the print. If there be good gradation in the negative from shadow to moderate density there should be no difficulty in obtaining a thoroughly satisfactory print on print-out papers.

THE PAPER.

Mr. Bennett referred in his demonstration to none but commercial papers. Different brands of paper gave wide differences in the results, but the worker would select the one which in his view gave the best performance from a good, fairly vigorous negative.

The treatment of the several brands was practically identical, and he would, therefore, deal with printing-out papers as a whole, making no distinctions.

The paper should be stored carefully, preferably in a tin, free from atmosphere and damp, although not chemically dry (as platinum paper). The paper should never be permitted to come in contact with the metal, of course. A wrapping of good paper or an old silver print should be used to prevent such an accident, or the tin should be japanned. Kept in this way, the paper could be preserved for months without undue deterioration. Albumenized paper, when kept for any length of time, printed in a much quicker time, but with inferior quality. Gelatine papers did not vary in this way, however, if properly stored. This preservation of the paper from the air should be observed both before and after printing; but as little time as possible should elapse between printing and toning—certainly not more than a week. Prints would tone after that time, but with more difficulty.

THE WASHING.

The prints required washing in the first place, and it was best to immerse them in a dish of water one at a time. The water should not be applied to the prints. The prints should be pushed well below the surface of the water, but not to the bottom, and the formation of air-bubbles should be carefully avoided. Prints should be separated one from another by a layer of water, and it was better to have them all face downward. It was necessary to wash for some fifteen to thirty minutes; but time was not so important as a thorough change of the washing water. For this purpose it was well to have two dishes, transferring the prints from one to the other, one at a time, fresh water being used at each change. This washing removed the free silver from the paper, and, if the batch of prints was large, longer washing would be necessary to secure the complete solution of the silver in question than in the case of a small batch of prints. Observant members of the audience noticed that Mr. Bennett never failed to draw the back of the print across the edge of the dish when about to transfer it to another change of water. This removed a lot of the adherent water, and, when it is remembered that this latter was charged with something which was not required, the object of the dodge is obvious. The first few changes of water, Mr. Bennett pointed out, will be very "milky." It is generally recommended to continue washing until there is no trace of milkiness; but Mr. Bennett advised his audience to continue well beyond this stage.

PRINTING.

All negatives intended for silver printing should be varnished. Mr. Bennett said he regarded this as most important. It was surprising how well a negative would keep when varnished as compared with the manner in which it would keep in an unvarnished state. He instanced a striking proof of this assertion that occurred in his own experience. He came across a grooved box that had been kept for four or five years on a shelf in a room that was by no means too dry. It contained two negatives prepared in exactly the same way, but one was varnished and the other not. The varnished plate was as good as ever it was when he re-discovered them, but the other was stained and marked and practically useless. Varnishing was, however, more important than ever in the case of silver printing, as dampness caused silver stains upon unvarnished negatives, which were hard, and sometimes impossible to remove.

Perfect dryness during printing should therefore be secured, and rubber pads at the back of the paper will be found very serviceable. The careful printer will use these pads for all papers, and not alone for platinum printing, as some are satisfied to do. At this time of year, when negative and paper, if printed outside, get very cold, another trouble was caused by the condensation of moisture upon the negative upon bringing the frame into a warm room. If the frame be closed at once, after examination of the print, damp is imprisoned, and one must not be surprised to get silver stains and a ruined negative.

Printing in the sun should not be generally resorted to. It was only advisable in the case of strong negatives. Good negatives should be printed in diffused light. In the winter he had sometimes printed in the direct sunlight, but a comparison of the results did not recommend the practice. Incidentally, a negative that took too long to print would never give a satisfactory tone. It had been remarked that the tone of the print was settled when the photographer held the lens-cap in his hand, and there was a great deal of truth in it.

Many beginners go wildly astray in gauging the depth of printing. They make their prints far too light in tone, failing to appreciate how great is the loss in the depth of the print in the subsequent toning and fixing. One must become accustomed to the fact that the shadows must be blocked up and the high lights distinctly degraded. If the prints are required to be of a warm tone, it is not necessary to print as far as for the colder tones, because it is the longer time in the toning bath necessary to produce the colder tones that undoes so much of the initial light printing.

THE TONING BATH.

The choice of a toning bath is not too well considered by beginners. They are satisfied, as a rule, to use the baths put forward by the makers of the papers. On this point, Mr. Bennett took exception to the instructions issued by the makers, because nearly all of them recommended baths containing sulphocyanide of ammonium. Toning baths should be simple in their composition. They should be prepared with as few ingredients as possible, and, if these can be made up into two stock solutions of known strength, so much the better. The bath should be one that will give with certainty any color from the warmest red to the coldest purple. It should work in such a manner that one may judge the final tone in the dish. Mr. Bennett failed to understand why sulphocyanide was ever recommended. It was a frequent cause of double tones. The formula that Mr. Bennett used is as follows:

Phosphate of Soda . . .	24 grains.
Gold Chloride	1 grain.
Water	20 ounces.

He showed what this bath could do in the form of six prints illustrating the tones given by stopping the action at different stages; the tones in every instance having been judged by reflected light. The bath given above is readily made up from two stock solutions—one a solution of gold chloride (a 15-grain tube dissolved in 7½ ounces of distilled water), which will keep indefinitely, and the other phosphate of soda 1 ounce, dissolved in 18¼ ounces of water. Every half-ounce of the gold solution will contain 1 grain of chloride, and every ounce of phosphate solution will contain 24 grains of the soda salt. The phosphate solution is a 5 per cent. solution, somewhat weak, perhaps, but a 10 per cent. solution will crystallize out. To prepare the bath from these stock solutions one has only to take in the proportion of one ounce of soda phosphate solution to half an ounce of gold solution and make up to twenty ounces with water. Some papers tone more readily than others, and to meet these variations the bath should be made up to from fifteen to twenty ounces accordingly. The bath need be mixed only just before use.

Mr. Bennett digressed for a moment to urge the importance of using only distilled water in the preparation of all photographic solutions. Many people still considered distilled water a mere luxury, but he had convinced himself that waters from different supplies varied very widely, and often contained undesirable elements from the photographic point of view. He believed that more discrepancies in the opinions expressed by different workers might be

traced to the use of impure water than to the inherent defects of a given formula or method of working.

TONING.

As regards the quantity of solution required for toning, 1 grain of chloride of gold to each sheet of paper (sixteen half-plate pieces) should be allowed. If the prints to be toned exhibit a large area of dark work, then up to 1¼ grains should be the allowance.

During the toning the prints should be kept moving. It is very easy to get uneven tones, and if the toning commence unevenly it is impossible to put the defect right unless one carries the toning to the extreme. The prints should, therefore, be slid beneath the solution face down, and at such intervals that one has time to remove a fully-toned print before another calls for similar attention. Warm tones should take not more than two minutes, but cold tones may call for as much as five minutes.

The temperature of the baths for gelatine papers should be 60° to 65° F.—not colder and not warmer. If too cold the bath works very slowly. As regards the light in which toning may be carried on, a weak diffused daylight or the ordinary light of a room at night has no action upon the paper.

As regards the difficulty of putting prints one by one into the toning bath, from the point of view of difference of tone between first and last, this was true of the sulphocyanide bath, but not the phosphate bath or the formate bath (given later). The use of pure distilled water, instead of ordinary tap-water, was, he believed, all that was necessary to overcome the trouble. He pointed out that the toning bath he was using was absolutely clear, although the phosphate bath made up with impure water was quite milky. Such a condition in a bath did undoubtedly give trouble. In dealing with a batch of thirty-five to forty prints, he would not take sufficient bath for the whole and feed the prints in one by one; but he would divide the solution and the prints into three or four parts, and then proceed on those lines.

Another toning bath given by the demonstrator referred to above is composed as follows:

Soda Formate	15 grains.
Soda Carbonate	2 grains.
Gold Chloride	1 grain.
Water	15 to 20 ounces.

After toning, the prints require washing in two or three changes of water before fixing.

THE FIXING AND WASHING.

The fixing bath recommended and used was composed of

Hyposulphite	3 ounces.
Water	20 ounces.
Strong Ammonia	1 drachm.

The prints should be immersed in this bath just as they were put into the toning bath, and with the same precautions.

In most cases a plain hypo bath is given, but in the old days strong ammonia was recommended, and the claims then made were supported by the demonstrator. It was claimed that an alkaline fixing bath tended to give more permanent prints. Mr. Bennett had prints fixed ten or twelve years ago in this way, and they showed no change in the whites or the tones, whereas prints fixed in plain hypo solution were not so satisfactory. He did not agree with the use of an acid fixing bath on any account.

Fifteen minutes should suffice for fixing if the prints be moved about. If they be allowed to stick together, yellow stains may be looked for. Mr. Bennett believed a thorough fixing to be, if anything, more important than thorough washing. He did not wish to minimize the value of the latter in any way, but wished to emphasize the absolute necessity for perfect fixing if fading is to be avoided. An hour, with repeated changes of water, was ample; careless washing might be continued for twenty-four hours without the desired effect.

A frequent cause of fading was the use of impure mounts and mountants. He used a freshly-made starch paste. Attention to this should remove one factor in the question of fading; and, if the prints still show a falling off in quality, one must look for the cause in a want of attention in some other portion of the operations. Combined baths have been the cause of

much want of permanence, and Mr. Bennett has avoided them altogether. Toning continued after the gold was exhausted, and one could not tell whether the tone was due to gold or the other chemicals in the bath.

FINISHING.

One of the attractions of print-out paper was undoubtedly the glossy surface with which prints might be finished, but many workers had been troubled, after squeegeeing on glass, ferrotype, or slab, by the difficulty of removing the prints, at the same time preserving their surface. The ferrotype sheet was a good medium, as it required no preparation other than washing and polishing. But the cause of most of the trouble was the method of squeegeeing. Plenty of water should be present between the print and the ferrotype sheet before the squeegee is applied. Attention to this will remove all the trouble.

Prints are sometimes hardened before this squeegeeing, in order that they may be mounted without the heavy loss of gloss which follows the application of the mountant. The print should be treated with a bath of—

Formalin	1 part
Water	9 to 12 parts

for one or two minutes, followed by a wash in three changes of water for a few minutes to remove the greasiness left by the formalin. No harm is caused by the formalin. The hardened print is then applied to the ferrotype, and when dry and stripped may be mounted even in a wet condition without appreciable loss of gloss. Mr. Bennett had not found prints hardened in this way to be very brittle, as suggested when treated as described by him.

RELIABLE METHODS AND FORMULÆ.

Formalin. When using formalin to prevent frilling of the gelatine film do not use it as is customary. As a rule, a 3 to 5 per cent. solution of the formalin put up for photographic purposes is recommended, and the instructions say to bathe the developed, fixed negative, in such a bath from five to ten minutes. Those photographers following this course certainly do prevent their plates from frilling, but they also succeed in paving the way to much annoyance and vexation should they ever desire to locally manipulate such negatives with intensifier or reducer. I have found —and I have been using formalin for some ten years for the purpose—that a 10 per cent. solution is sufficiently strong, in fact the right strength, and that the fixed negatives should be dipped in this tanning bath no longer than thirty to forty-five seconds, then immediately plunged into water and washed in the usual manner. In following these instructions you will insure your negatives against frilling, will permit the washing water to thoroughly wash out all hypo from the film, and, what is very important, will be enabled at any time to treat your negatives with intensifier or reducer, or both.—ALFRED STIEGLITZ, in *Down Town Topics.*

A Substratum for Gum Bichromate Paper. Herr Watzek, writing in the *Photographisches Centralblatt*, calls attention to the fact that a flat or brilliant print may be obtained at will by regulating the extent to which the pigmented mixture sinks into the pores of the paper. If a hard, thick, and insoluble substratum is used, the image is kept well to the surface, and a brilliant picture results; while a flat print results if a soft paper is employed without any preparation, and the grade of the substratum serves to regulate the nature of the print. A thin wash of substratum is often desirable, even when highly sized or hard drawing-paper is used. The substratum may be paste, shellac, gum, or gelatine; but a curious preparation of mouldy gelatine and formalin is specially recommended. A 5 per cent. solution of gelatine is exposed to the air until the surface becomes mouldy and the jelly below begins to liquefy. The fluid portion being poured off, three to five minims of commercial formalin solution is added to each ounce, and this mixture is brushed over the paper while cold. When dry, it is insoluble. Adjustment to any required needs is made by diluting the preparation.

By Atelier Sophie, Graz, Austria

By Atelier Sophie, Graz, Austria

By Atelier Sophie, Graz, Austria

"I wonder why they put me up here!"

The Jackson Studio, Tacoma

PORTRAIT

By Homeier & Clark, Richmond, Va.

PORTRAIT

By Harrison Krips, Philadelphia

Watching for the bird

The Randall Studio, Ann Arbor, Mich.

BABYHOOD

By F. W. Rice, Worcester, Mass.

IN SUMMER TIME

By C. Puyo, Paris

H. SNOWDEN WARD, Esq.

By B. J. Falk, New York

(See article, "The Portrait and the Studio")

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The third of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of B. J. Falk, of New York, are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

In selecting a subject to place before photographers I was swayed by the idea that true comparison could only be made if *the same sitter*, in the same costume (or, in other words, the same problem), were submitted to all. The only sitter conveniently available for both sides of the Atlantic was the one represented. The principal difficulties of the subject (dealing with the face only) are a high brow with a pallid patch bleached by the hat-band; eyes small, close together, unequal in shape and size, and with drooping lids; eyebrows blond, and beard of unequally blond patches, with tendency in certain lightings to photograph in a tone indistinguishable from that of the skin; a nose tending to show a broad parallel-sided line of light in any pose approaching full face, and cheeks showing the result of a fairly well-fed but too sedentary life, with far too little exercise to keep the face in "condition." It may be well to note these points and to see, month by month, how each photographer has dealt with them.

Mr. Falk, round and rosy, essentially brisk and cheery, shows at once the personality to which he owes his great success with sitters; but it is difficult to realize that this young-looking man with the light springy step and "the smile that won't come off" is one of the "fathers of American photography." It was a bold venture when he moved an old-established and successful business to the fifteenth floor of the Waldorf-Astoria, "the world's greatest caravansary," with the enormous expenses attached to that luxurious building, but the experiment seems to have been successful. The reception-rooms and studios were illustrated in the April, 1900, issue of this MAGAZINE. Above the reception-rooms, up a magnificent flight of steps, is the studio, with about thirty-five feet by twenty-five feet of operating space, and great recesses for backgrounds and accessories, which are provided in large quantities and freely used. There is only one large light, about fifteen feet square, facing northward, commencing at about six feet from the floor, and running to about sixteen feet high at the ridge. Americans have clearer skies than British folk, and work their sitters farther from the light, which is generally smaller and more concentrated than in British practice. Mr. Falk's light has ribbed glass, with a set of white spring-roller blinds, running from top and from bottom, and another set completely opaque.

Mr. Falk still quotes for portraits by the dozen, and frankly admits that he likes "good old-fashioned pictures, in which the sitters can be recognized by their friends." He believes in letting the sitter take his own pose, and at the beginning of our sitting said, "Look around and see which of these chairs seems most comfortable; then we'll have a chat." The chair I selected happened to stand on a revolving, castered platform, and was at once moved to the position already selected in the stream of light. The blinds had been previously closed, to give a small, concentrated lighting. A suggestion to rest the elbow on the chair's arm, and the chin on the hand, a few moves of the camera to various positions, and the first exposure was made. Then the platform was moved to give a new lighting and background, and a second exposure. A little running chat about photographic friends in London was

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rippling all the time; once only the blinds were changed to give a broader lighting, and the whole sitting of half a dozen poses and plates was completed very rapidly.

The treatment of the results was characteristic of the man. When I called to see prints, Mr. Falk produced two only. "Here," he said, "is a study, 'The Professor,' and here is a portrait that I consider satisfactory as a likeness. At any rate it is as good as I can make just now. The others are not so good, so you must not see them. In the portrait I tried to suggest a man who thinks—reflects; and I hope it is fairly successful." This portrait is reproduced on page 122 of this issue of the MAGAZINE, and needs, I think, no detailed criticism. It will be the subject of reference in certain later chapters of this series.

PROFESSIONAL PORTRAITURE.

BY CHARLES W. HEARN.

VI. HANDS, ARMS, ETC.

(Continued from page 96.)

THE hands and arms serve their part toward concentrating the interest to the face, although frequently used in a different sense. In the three-quarter or full-length pose of the female figure especially, they are well employed in connection with the curves of the body or dress, in forming the pleasing S line in composition—a great favorite with all on account of its beauty when successfully accomplished.

These members of the body are, however, used in many cases where they injure the composition, especially when they receive more than their proper quota of light, by not being properly subordinated to their proper position of attractiveness. We frequently see the arms of a lady extended out some distance from the figure, with a flower or something in the hand, or outstretched horizontally across a table or over a chair—a pose we all make at some time or other, often in compliance with the wish of a patron. If when we make these positions we also take pains to arrange the light so they will not be too high in key, and less noticeable than the face (to which we have tried by various means to draw the attention as first in importance), then such poses could be admissible, providing they be not strained in the effect produced. Certain other principles, however, are not to be violated. The background employed in such cases should be one that would assist you in your efforts to make them less conspicuous, so that no contrast would thus be permitted to nullify your efforts at subordination.

We mention that "other principles" may be violated by the positions of the hands and arms, and by inference stated that if this be the case, then the pose (unless corrected somewhat) could not be properly employed. This would especially occur if there be a breach in *rhythm* of line, or lack of *balance* in the composition, owing to the axis of the picture on account of the pose being deflected from the vertical. For this reason, it is much more difficult to obtain *rhythm* in line and values, with a correct *balance* of the whole arrangement. More easily understood and obtained with a vertical axis, a departure to the oblique calls forth extra care and skill, but when successfully accomplished, it goes without saying that the student of photography has taken several decided advanced steps in the direction of art.

The members of the body, including the lower limbs, are best arranged, however, when their component parts are evolved *within the figure itself*, so that their protrusion would come within a reasonable distance of the figure itself; the whole composition in that case being made to confirm in its entirety to some special pleasing form of arrangement. We all can conceive this to be possible, and the idea of the pose is saved by tempering it by subordination and conforming it to make a pleasing composition.

The writer recalls seeing recently a full-length seated portrait of a man with his legs

stretched out almost horizontally, the object evidently being to give a careless pose, which in that sense was certainly a grand success. The man was short, and some attempts were made to lose the elongated effect by the subordination of the light, and yet even with these aids the pose was so atrocious without any general form of composition that it marred the other parts of the picture, some of which were very good. If not successful under these conditions, it is easy to imagine what it would otherwise be if it had not received the assistance it did in the lighting.

AN EXAMPLE.

One of the finest pictures produced by a professional during the year just passed is entitled "The Prophets," made by Knaffl & Bro., of Knoxville, Tenn. It was exhibited at both the National and New England Conventions, and probably elsewhere. Those of our readers who have seen it will readily recall it. It is also well reproduced in the October, 1903, issue of the *Photo Era*. In this masterpiece, the writer would call attention to the admirable manner in which attention is drawn to the faces, by the lines of the garment of the figure to the right, and the staff in the hand of the other, and by the subordination of the whiskers, and of the garments. The *rhythm* of the lines is aided by the direction of the staff, which runs in a similar direction with the lines of the garment of the other prophet. This *rhythm* would have been broken if the bottom of the staff had been more to the centre of the picture, and the knob in the same position or nearer his elbow. A breach of *rhythm* is barely saved where the knob of the staff almost touched the book, the shadow between the two saving it in this instance.

Besides many other excellent features in this picture, attention is called to the arrangement of the hands, as being contained within the confines of the picture, and the book itself, which in the original does not by attraction cause the amount of attention, rather noticeable in the reproduction. Note that in this picture "originality" of an advanced sort is shown in the creation of the artists in the selection of their theme, and their own mentality that caused this production, also ably carried out by the models themselves. Note also the spirituality of the subjects, *Vivacity*, an important art principle, being here indicated in a fitting manner. Here is a photographic result which can be rightly termed an art production, as it embodies many pictorial principles, but above all we see that it has qualities of a painting. A painter who produced a picture of like quality would not only be called a good painter, but also a good artist; the photographers have not only produced a good photograph in technique, but they have also produced an artistic result of a very high degree. We forget the art in realization of the beauty of the expressions. We can permit our mind to weave thoughts of the lives and character of these men, giving full play to our æsthetic taste, deriving much delight in this contemplation of the varied suggestions brought to our minds by looking at their faces. Later, we view the pictures, think of the artists, and then view their work. It is a pleasure to the writer to find beauties in the pictures made by the present-day photographers, which will encourage all of us, by noting the steps our contemporaries are taking. In pursuance of this policy for our mutual upbuilding, reference will from time to time be made to other pictures that come to our attention, in which certain effects are produced.

As a final word in closing, some suggestions as to the use of the hands, arms, and limbs of the body, we advise special attention be given to good reproductions of paintings, where such things have been treated. Meanwhile, keep the limbs always tied to the figure, and the figure to them. Don't let them go on an exploring expedition, but keep them at home.

A RESUME.

The reader who has followed the course of this series of articles, will have noted that the writer, under the general head "Composition," has mentioned, while "creating the picture," that particular attention should be paid to the following suggestions:

1. The importance of becoming acquainted with the subject, to some extent at least, before commencing operations.

2. Originality, with its various forms as tending to give a noticeably marked in-

dividuality to the work, paying special attention while treating of this feature to the portrayal of the "character" or soul of the sitter, so that it be properly brought to the front as being most vital to our success as portraitists.

3. That some definite form of arrangement should always be the aim in composition, such as the circular, elliptical, various forms of the angular, S line, etc., or possibly some of these forms inside of others, viz.: the elliptical within some rectangular, etc. These forms should not be carried out so literally as to make them too apparent, thus giving undue attention to the design as being your scheme, but should rather be intuitively suggested than otherwise. It is well, also, to repeat a previous remark, to assist in keeping it ever prominently in mind, namely, that from "the moment we commence upon composition it will be found that every part of the work has a connecting link with every other, and that while performing one part a step is being taken toward another and probably equally as important principle in art," until at the end unity of the whole is accomplished. Of course, we all recognize this difficulty, although a much desired *desideratum*.

4. In "concentration of interest in the picture" we mentioned as aids the arrangement of lines, contrasts of light and dark, and subordination of less important things to their proper weight by attraction; the degree of success attained, especially on these last two points, being measured by our ability to intelligently control the lighting to obtain this result.

5. We closed the preceding issue of this series with some remarks upon the posing of the hands, arms, etc., with a view to their importance in composition.

Before leaving this section for other fields, it may be wise to more fully comment upon our previous suggestions as to lines, contrasts, and subordination as aids to the concentration of interest in the picture, although they all play important parts in other principles not as yet mentioned in these papers.

LINES.

To even partly appreciate the power that lines possess in every form of composition, as well as their influence in determining and obtaining dignity, sweetness, and even every other form of expression, we should give it our closest study.

To thoroughly or even fairly well explain this in writing so as to give the average reader, who may not have bestowed much thought upon it, a comprehensive view of their importance, requires, unfortunately, a more subtle talent for analysis than the writer possesses. Whereas there is much that could be said which is comparatively easy of description, there is an æsthetic sense in which the power of lines is of value, which is felt intuitively by the average man, but not tangibly enough for explanation.

We all know that lines, on account of location, size, and shape, play an important part in giving solidity, ruggedness, delicacy, beauty, etc. These are more readily understood, as they are very apparent in a picture. When we consider that there is nothing having form or shape, taken either as a whole or in part, which is not composed to almost a confusing extent of lines of some sort, their great importance in shaping the destiny of a work of art can in a measure be realized.

The extent to which most photographers give attention to lines consists mainly in the arrangement of a lady's dress so that they may conform to some of the graceful lines noticed in the well-formed nude female figure. Hogarth's favorite line of beauty, described by him in his essay, is the line of a woman's back, as shown in profile from the neck to the thigh, and this line is more or less followed—often even more sweeping in its course—by the majority of artists and photographers in female pieces.

Poore, in his excellent work, *Pictorial Composition*, speaking of this line of beauty, says: "It is particularly adapted to upright arrangements, and one largely used by the old masters. We are able to trace this curvilinear feeling through at least one-third of the Renaissance." . . . "Over and over again Rubens has repeated this general form, and always with good effect. Whether the line is traceable upon the vertical plane or carries the eye into the picture and forms itself into the graceful union of one object with another, its great

pictorial power is revealed to any who will look for it." Again: "If two (of these lines) be joined side by side, they produce the beautiful curve of a mouth and the cupid's bow. Horizontally, the line becomes a very serviceable one in landscape." . . . "The compound curve which this line contains is one of perfect balance, traceable in the standing figure."

Professor Hitchcock, at the Detroit Convention in 1901, spoke of this and the S line, and subsequently contributed a series of articles on composition in the *Photo Beacon* commencing at about that date, which are very valuable, and to which the reader is referred.

When this decorative line is employed, it should always be the main line in the composition, all others being of far less prominence, and mostly employed either to give it beauty or force, as a subtle aid to its continuance, or to give balance to the composition. It is a mistake to have two equally important lines, thus causing a diversion of interest with a resultant great loss to the desired effect. When, as sometimes seen, these equally important lines are antagonistic to each other the effect is as jarring to comfort of mind as would be the case if your cat and my cat were to meet each other on our doorstep on a frosty night.

The continuance of this major decorative line through the figure by the arrangement of the skirt, properly placed arms, curve of the shoulder and neck, bend of the head, and often carried *over* the head by the line of the lady's hat until lost on the other side of the head, makes the harmony and extends Hogarth's line to the "S" line (referred to heretofore on several occasions), which thus in turn becomes the principal line in composition.

(To be continued.)

NEWS AND NOTES.

A Biographical Memoir of M. Carey Lea. The forthcoming volume of the *Proceedings of the American Academy of Sciences* will contain the Biographical Memoir of M. Carey Lea, prepared by Dr. George T. Barker, and read before the meeting of that body last April. Accompanying the Memoir is a portrait in halftone.

Mr. Lea's work in science is reviewed in detail by the appreciative pen of Dr. Barker, who writes: "By far the most valuable, as well as the most extended investigations of M. Carey Lea, however, are those which related to the chemistry of photography, in which, at the time of his death, he was the acknowledged authority."

Appended is a bibliography of one hundred and one articles on chemical subjects contributed to various scientific journals. Besides these, there were numerous articles in photographic periodicals: some three hundred in the *British Journal of Photography* alone. Our older readers will remember that M. Carey Lea was associated with Edward L. Wilson in the early conduct of this MAGAZINE, then known as *The Philadelphia Photographer*, and also in the editorial preparation of the first volumes of *Photographic Mosaics*. His contributions to these pages form by far the most notable feature of the early volumes of the MAGAZINE.

Mr. Lea was born August 18, 1823, and died March 15, 1897.—[C. W. C.]

Photography at the St. Louis Exposition. We gladly make room for the following letter relating to the question of admitting cameras to the World' Fair.

ST. LOUIS, January 21, 1904.

TO ALL PHOTOGRAPHIC CLUBS, GREETING:

Knowing that the question of a charge for admission of cameras to the grounds during the holding of the great World's Fair in this city, from April 30 to December 1, 1904, is an important one to all photographers, the Missouri Amateur Camera Club desires in this connection to ask you to take up at once the question of forwarding to the president and directors of said Exposition, a petition signed by all members of camera clubs and others in your city interested in photography, asking that no charge be made for admission

to the grounds of cameras in sizes of 4 x 5 inches and under, without tripods.

This club is to-day starting seven such petitions among the supply houses in this city, and will without delay get further information as may be needed as to time of decision and the committee before whom this question will come. We hope you will join with us at once in this matter, and that you will send to our club secretary, without delay, all such petitions, so that they may be presented with ours to the World's Fair Committee, which will decide this matter, at the proper time, by this club through its officers.

We would ask that you bring this matter before the *newspapers in your city*, so that they may be with us through their valuable columns. Trusting that you will take up this very important matter, and that we shall hear from you in the near future, we remain, yours very truly,

MISSOURI AMATEUR CAMERA CLUB,
By Executive Committee.
NO. 1 N. BROADWAY, ST. LOUIS, MO.

The Official Amateur Photographers' Day at the forthcoming World's Fair, St. Louis, has been set for July 27th, when it is expected that the Exposition grounds will display more cameras than have ever before been gathered together in one place. Much, of course, will depend on the rules made by the authorities regulating the admission of cameras.

AN example of how the latest apparatus for quick photographic manipulation can be used to advantage in a novel way was demonstrated last summer by a representative of the *Newark Evening News*. He was commissioned to be stationed on the revenue cutter "Gresham," to photograph the international yacht race on August 25, 1903, the second day of the race. He took with him a Kodak camera, a Kodak developing machine, the material necessary for developing film negatives, and a number of carrier pigeons.

The yachts were photographed as they crossed the starting line at 11 o'clock A. M. Immediately after taking the picture he placed the developing machine, containing the developer, upon a table on the deck of the vessel, and in broad daylight developed and fixed the roll of exposed film. This was completed in about ten minutes. The finished film negative was hurriedly dried, then rolled up in small compass, and securely wired to a carrier pigeon under the tail, where it would in no way impede its flight. The pigeon was then released, and in exactly an hour and a half arrived at its loft in Newark, N. J.

The negative film was found upon it in good condition, and was at once removed forthwith to the newspaper office, where a print was made, and by 3.48 P. M. a half-tone plate was completed, by the usual half-tone process, placed on the press, and a few minutes later the paper appeared, containing a picture of the morning's yacht races. It was quite a novel idea to utilize the carrier pigeon for transporting picture film for purposes of quick reproduction, and in its way is more positive than wireless telegraphy. We believe during the siege of Paris, in 1870, letters reduced by photography down to extremely small size were transported by carrier pigeons to the outside world, and then enlarged by a lantern upon a screen large enough to read. But that was prior to the days of rapid photography or dry-plate or film machine daylight development.—*Scientific American.*

THE January 30th meeting of the California Photographers' Association was a "ladies' night," the members bringing their wives and lady friends to partake of the association's hospitality. An enjoyable musical programme was provided by the entertainment committee, with refreshments, followed by dancing. Our California brethren are leaving no stone unturned to ensure the success of their association, and their efforts to promote good feeling and sociability deserve cordial recognition.

The Ideal and Ingento Enlarging Lanterns are described and illustrated in a new catalogue received from Messrs. Burke & James, Chicago. Photographers will find in these instruments a ready means for adding a profitable specialty in the shape of enlargements and should not overlook their advantages.

GASLIGHT PAPERS AND BRUSH DEVELOPMENT.

THE increasing popularity of gaslight or development papers of the Velox class has led to many experiments with the purpose of further simplifying their manipulation or of modifying manipulation to secure greater control over the finished print. The following method of brush development of Velox, by Mr. W. Perry Hopkins, gives plain instruction and seems to promise definite usefulness. Mr. Hopkins says: We will need a flat camel's-hair brush for the work—one which is bound in rubber is best. Some people prefer a tuft of absorbent cotton instead of a brush, but I have not found this desirable, because I cannot regulate the lightness or heaviness of touch so accurately. Emulsions on the coarser-grained papers must not be rubbed too hard, and besides, the cotton becomes saturated with the developer—and metol injures my skin. If one is inclined toward economy in the first outlay, an imitation camel's-hair brush will do. The so-called letter-press brush about two or three inches wide can be bought of any stationer, but, being tin-bound, it will be likely to shed hairs on the prints sooner or later.

If neither the brush nor the cotton tuft appears just what you want, try a long-nose medicine-dropper, to the end of which has been fastened a tuft of absorbent cotton held in place by a small rubber band wound around the "nose." The advantage of this is that it will fit in the developer bottle and sufficient liquid will be sucked up into the dropper to last some time, and still be kept away from the outer air till needed. Pressure on a rubber bulb will, of course, increase the flow when a part of the print is reached which needs vigorous development.

A second and smaller brush (while in no way essential to the process) is often of much use in working up small spots in a negative; and it, too, should be rubber-set. It may be from half an inch to an inch in width, as one prefers, and should "point" moderately well.

You may use an ordinary water-color brush with a wood handle and tin-bound, or a quill-handle brush. The metal on the former can be made impervious to the developer by giving it several coats of *heavy* rubber solution (used to mend punctures in rubber tires), first cleaning the metal with a tuft of gasoline-moistened cotton, and letting each coat thoroughly dry before applying the next. The quill-handle brush is simpler, and can be made less fragile if a piece of wood is fitted into it all the way down to the point of binding. Instead of this small brush, one might use a second dropper with a smaller tuft, but I prefer the brush.

Unless you are looking for warm-toned prints, rinse your developing-tool—whether brush or cotton-tuft—after every four or five prints; in case of the cotton, better throw it away and substitute a new piece, as it mats down after a while.

A tray one size larger than the largest print to be developed will be needed, and also a piece of glass (a scrap of plate-glass is best) of the width of the tray and say two inches longer, to gain a slight incline when set in the tray. After the developer is prepared, the brush or brushes are dipped in clear, cool water and then shaken out semi-dry. If you work with your face toward the light, hang a piece of cardboard near the light to intercept its direct rays from the developing tray, or turn your back to the light and work in the shadow of your own body.

And now to work. The largest prints I make by contact are 5 x 7. For them I use an 8 x 10 tray and a sheet of glass in proportion. The next smaller sized tray would suffice, but I like plenty of room, and the tray is useful for developing enlargements. I open my first printing-frame and take out the sheet of Velox, and after pouring about half a spoonful of developer from the bottle directly on the brush—the later prints will require only a few drops—I lay the print, face up, upon the glass, usually without previous rinsing (though it somewhat retards development and does no harm), and go quickly over the entire surface with a brush, with light but vigorous strokes. I keep this up until the print does not become darker by repeated brushing.

To keep the print from slipping on the glass, one may either hold down a corner with a thumb or finger—in which case the

rubber finger-cot is decidedly useful—or else (if not previously moistened) snap a thin elastic band around the glass and slip the end of the print under it. Not having been soaked in water, the tendency of the sheet to curl will tend to keep it in position under the elastic.

Owing to the small quantity of developer on the brush, there will be little or none to trickle down into the tray. At the end of an evening's developing you will be surprised to see how little residue is left.

The advantage of this development method is obvious—the developer bottle being kept corked tightly between prints is therefore unoxidized either by the air or the return to the bottle of used developer.

If you use two brushes, exchange the large for the narrower one as soon as the image is fairly distinct, and paint lightly away on the print at the points you wish to appear most prominent, leaving the portions you wish to restrain with less attention from the brush.

Now, when you have brought up the particular parts of the prints you wish darkest, take the large brush again and go over the entire print a few times lightly, to blend together the portions variously acted upon by the solution, and prevent any apparent lack of uniformity.

Then take the print (still attached to the sheet of glass) out of the developing tray and slide it endwise into a dish of clear water (to rinse the developer off the paper instead of having it clog up the fixing-bath) for a few seconds' immersion—say long enough to get the next print out of the printing-frame, after which it is ready for fixing.

Another method, which combines the advantage of the bath and brush method, is as follows: After a number of exposures are made I open the first frame and give the print a quick rinse in clean, clear water (to prevent curling) before I slide it into the developing tray, and pour the developer over it, patting out any air-bubbles with a bit of absorbent cotton fastened to the end of a match. Just as soon as the deep shadows commence to appear I whisk the paper out of the developer and into clean water for a second or two while I pour the developer back into a bottle and cork it. This keeps the solution from oxidizing in the air before the next print goes in. Next, out comes the print from the tray, with a shake to rid it of some superfluous water, and down it goes on a sheet of glass resting across the developer tray. Development is completed with the brush. Such a method both saves time and renders better prints. Three trays are needed—one for developer, one for rinsing-water, and the third for fixing-bath. The water in the second should be renewed for every ten or a dozen prints.

In connection with this outfit it is well to have a small bottle, through whose cork has been thrust the quill-handle of a small camel's-hair water-color brush—so the brush is kept out of the dust and air when not in use. Use the cork as a handle. I fill the bottle about one-fifth full of regular 10 per cent. bromide of potassium solution (it is not necessary to be exact) and fill it up with water. This makes about a 1 : 50 solution and you can dab it on rather recklessly, without absolutely stopping development where it touches. Do not try to cut a hole through the brush-handle; burn it through with a hot wire. A dab of this solution will restrain any parts of the image which appear to be developing too rapidly; and yet it will not "paralyze" the print as the 1 : 10 solution will.

A very useful convenience in developing prints with the brush is the S. and F. Dry Plate Handle, obtainable from most dealers. If the sheet of Velox is held on a piece of glass by two very narrow rubber bands at the ends, attaching one of the handles makes it possible to manipulate the print in and out of water-baths and developers without touching the paper at all—an advantage always, and with very rough papers often a necessity.

Keeping Platinotype Paper Dry. The rubber band used to cover the junction of lid and box will sometimes get hard and lose its elasticity; in which case, try the effect of soaking it in fairly hot water for a few minutes. This may partly restore its elasticity by rendering it less hard, if the rubber is of good quality. If one band becomes loose, a second similar old band on top of the first one will often put matters right.

MY EXPERIENCE WITH OZOTYPE.

BY KARL LUTZEL.

THE many references of late in Continental photographic literature to Thomas Manly's Ozotype process having interested me, an old carbon worker, I determined to investigate this new method of producing pigment prints.

My first trials were made on smooth papers, with, however, indifferent success, better results being secured with the ordinary carbon process. I therefore continued my experiments on rough paper with persistence, until I obtained satisfactory results. For supports of the pictures the rough papers of Whatman, Harding, etc., are to be recommended, but require previous preparation or sizing with a solution of fishglue of 2 to 5 per cent. strength. The addition of chrom-alum is not necessary, as the subsequent treatment with bichromate renders the film insoluble.

The ingredients required for the production of Ozotypes are the same as for the usual carbon process. The prepared paper is now coated, using a broad bristle brush, with the following solution:

Water	10 ounces.
Bichromate of Potash	1 ounce.
Sulphate of Manganese	½ ounce.

After this solution has been evenly applied the paper is dried in the dark, and then printed under a negative in strong light until all the details in the high lights are visible. The progress of printing is easily controlled, and with some practice the desired degree of depth will soon be recognized. This reached, the print is taken from the frame, washed in several changes of water, till all the unaltered chromate salts are removed, with no trace of yellow in the last water, which will take from twenty to thirty minutes. The print may now be finished at once, or dried and kept till later.

Normal, fully developed, clear negatives, also paper-negatives, which I prefer, are best for this process. For transferring, carbon tissue of the same size is brought into contact with the chromate-picture in the following solution of hydrochinon, acidified with acetic acid:

Water	35 ounces.
Acetic or Glacial Acetic Acid	50 minims.
Hydrochinon	25 grains.
Sulphate of Iron	12 "
Sulphate of Manganese	60 "
Glycerine	120 minims.

Immerse the tissue in this solution for about one minute, then put the chromate picture into the solution and into contact with the tissue; lift both together from the bath and squeegee into absolute contact. After a little while development may be proceeded with, or the contact may be dried, in which case, however, it must be soaked again for a half-hour in cold water before developing. In place of hydrochinon, pyro or metol may be employed. All these agents have, when oxygen is present, great tanning or hardening power. In place of sulphate of iron, which also possesses great tanning power, sulphate of copper may be used, which, proportionate to amount, affects the contrast or softness of the picture.

I regulate the acetic solution by a larger or smaller addition of hydrochinon or acetic acid, the latter giving stronger, the former softer results. A small admixture of chloride of calcium to the solution gives to the pictures the character of gum prints, and facilitates development. Sulphate of manganese and glycerine have the same effect of making development easier.

To develop, the partly or fully dried transfers are soaked from ten to thirty minutes in cold water, then placed into a dish containing warm water (30° to 60° R.). After a few minutes the carbon tissue may be separated from the support (it comes off rather hard), when the development may go on to the finish.

The adhesion of the pigment film in Ozotype is much greater than in the carbon process, giving a chance for retouching during development by means of brush or ball of cotton. After development the picture is washed for several minutes.

The advantages of Ozotype are of special importance; for not only does the picture come, as it should be, correct from the outset as to right and left, but various reprints —according to the skill of the operator—

may be produced, showing effects of highly artistic value.

Ozotype is also well adapted to the tri-color process or print. Trials in this direction, made according to Professor Dr. Miethe's directions, gave me better results than the gum-print process.—*Translated from "Das Atelier," by A. Helmold.*

PHOTOGRAPHERS' ASSOCIATION OF ILLINOIS.

THE dates fixed for the next convention of the Illinois Association are May 3, 4, and 5, 1904, at the Coliseum, Aurora, Illinois. A very fine and instructive programme is being arranged, and will soon be made public. The secretary, E. C. Pratt, of Aurora, is busily engaged on the official programme, which will be a gem of its kind.

Among the lectures and demonstrations already assured is one by Mr. George G. Holloway, secretary of the national association, and one of the most successful photographers in the United States, and also one of the best demonstrators of his methods before photographic conventions that can be secured. Mr. Holloway will lecture and demonstrate, with living subjects and the real accessories, many valuable points in practical studio work. There is no doubt that Mr. Holloway's talks will be of great assistance to all who attend.

Prof. Felix Raymer has also agreed to deliver a lecture and demonstration on practical lines, both in daylight and in artificial methods of lighting. A most instructive talk is assured by this gentleman, and his presence at the convention will bring out many helpful talks during his visit, the value of which cannot be estimated here.

The usual medals and prizes are to be awarded at this convention, and perhaps a loving-cup or trophy not previously competed for. It is hoped that the exhibits will be forthcoming in even larger numbers than ever, and photographers should commence getting their good negatives laid by and new ones made now, during the dull season, so as to be able to pick out some "winners" for this auspicious occasion, and then, when it is time to send on the exhibit, there will be no need of rushing things through.

A trolley ride to Chicago on the "100-mile-an-hour electric railway" is one of the entertainments promised, with perhaps a theatre party or banquet in the city by the lake. Everybody come, send an exhibit, and help the good work on.

SOME DAY.

WE are all of us prone to put off the doing of a thing till to-morrow, or to that more convenient "some day"—a day that ever coming never comes—and when a good idea strikes us the most natural thing in the world is to make a mental resolve to carry it into execution some day; not, mark you, now, but always 'some day.'' It is so delightful to a large class of people to sit down after the toils and cares of the day, with slippered feet on the fender, and palms outspread to the fire, to give one's self up to the dreamy wanderings of the mind, conjuring up the most fantastical creations. Yet of the thousands who daintily entertain themselves in this way how many are there who will then and there pull out their pocket books and make a note of it with a resolute determination to take immediate steps to test the value of the idea. And how much fewer are those who are like some great novelists we have occasionally read of who have risen from their bed in the middle of the night to commit to paper some happy thought or intricate plot that has occurred to them; or again like some great inventors who have no sooner thought of an idea than they have rushed off to their workshop or laboratory to put it into execution?

No; it is so much easier to put off the doing of a thing, whether it be a duty or an intention, and the result is that most

men's lives are characterized by a prodigality of intention and a parsimony of achievement. They are like that character of whom Voltaire said, "He was an oven that was always heating up, but which never cooked anything." Hours, days, weeks and months pass by, and their lives are wasted in purposing and intending. The promised "some day" never comes, new duties, new cares, new ideas and new intentions crowd in upon them, and the great intentions of yesterday and the day before are altogether forgotten. Great occasions are waited for instead of the first opportunity, however small, being seized and employed. The work which comes easiest and handiest is always the first to be taken up, instead of following the advice of some of the wisest philosophers, to do that work first which is most repugnant to one's feelings, and by its accomplishment clearing one's mind and leaving it free to think of more congenial things. By shelving troubles we are only laying up a store of lumber which must be taken down and dusted some day, and that some day is probably the very day we had set our minds on carrying out a great idea.

Of course, there are always plenty of excuses for not carrying out our intentions; in fact we think excuses are more plentiful than ideas with some people. Let any employer go into his office or workshop and proceed to question each man on the reasons why such and such things are unfinished, and he will get the same old excuses, which are too often the same old lies, from everyone. And they will all agree on one point—the hoary and decrepit excuse, old as the world itself, that they "had not time." Go where you will, no matter what the nationality, no matter what the industry, it is the same prompt reply, "had not time." There is not a language on the face of the earth that has not an idiom for this expression. Children learn it as soon as they learn to talk, it is their most natural excuse for not learning their lessons; and as they grow up and go out into the world the habit clings to them, so that this ready excuse is ever on their lips. Even when men go into business for themselves and fail, the most common excuse at the Bankruptcy Court is that they had insufficient time—they had not time to make a success of it, had not time to pay, for the creditors were too pressing.

Seldom will you find a boy or man who will honestly own up to the true reason, as a rule, for incompleted duties. He will not admit that it was too difficult, too wearisome, or too distasteful, but always and only that he "had not time." He conveniently ignores the inconsistency of coming in late to his duties and knocking off early, taking a day off for any paltry little ailment, and eagerly taking every holiday that the saints and Sir John Lubbock have given him. He always finds time for meals, always time for a gossip with his fellow-worker, always time to dream idly over his desk and bench when the employer, or superintendent, or foreman turns his back; such men are always ready to go to the pay desk to draw their wages, and some find ample time for a Saturday-to-Monday debauch. Even those who would make pretension to being staid and respectable members of society find time for spending their evenings at silly entertainments, in foolish games, in desultory and purposeless reading, or in that luxurious dreaming over the fireside of which we have already spoken, toying with good purposes, turning them over in their minds as an epicure rolls a sweet morsel under his tongue, always dallying and never doing.

This absence of determination and resolution and the adoption of a vacillating, irresolute habit leads to the waste and loss of all that is valuable in life. It reveals an utter absence of force and character and that energy which in any pursuit gives earnest of success. It is better to resolutely decide to do one little thing now and do it well than to be always dreaming of the big things we may do "some day."—*Penrose's Process Work.*

Picture Titles for Painters and Photographers is the title of a book recently announced by an English publisher. The volume aims to supply quotations "chosen from the literature of Great Britain and America" suitable as titles for paintings or photographs.

SULPHITES.*

BY PROFESSOR R. NAMIAS.

THE extensive employment in photography of alkaline sulphites and metabisulphites induced me lately to go experimentally into the question of their stability and relative merits and utility, the results of which work are set forth below. As regards their true composition, the amount of sulphurous acid in each sample was carefully determined, and, having got that, the sulphuric acid present was ascertained. These two analyses were in themselves sufficient, usually, to indicate the nature of the sample under examination, as what was not sulphite was, as a general rule, sulphate. I say "as a general rule," because in one or two cases sodium carbonate in anything but a negligible quantity appeared as an impurity. This salt was clearly due to faulty manufacture, as it is well known that the sulphites are made by saturating solutions of carbonate with sulphurous acid.

The commonest of the sulphites used in photography is sodium sulphite, which is met with in commerce either in the form of crystals or in the anhydrous condition. Analysis of the best commercial samples in the market were sufficient to convince me that it is impossible to get sodium sulphite absolutely pure. The purest sample of crystallized sulphite examined did not contain more than ninety per cent. of sodium sulphite, strictly speaking. In good commercial samples the sulphite seems to average sixty to seventy per cent.; in bad samples, and these are by no means rare, ten to thirty per cent.

In the anhydrous sulphite the proportion of sulphate is always considerable. It is clear that the heating carried out to remove the water of crystallization, even when done under the best conditions, produces a partial oxidation of the substance.

In different samples of the product of the same and a good house, I have found sodium sulphite crystals to contain 44.2 per cent., and anhydrous sodium sulphite fifty-five per cent. of Na_2SO_3.

It can be seen from this that if we adhere to the recognized formulæ in making up solutions, it is quite possible that they may contain only half the quantity of sodium sulphite that we suppose them to contain, and a great deal of sodium sulphite, the action of which in the developer is not very clearly understood, but is, I believe, harmful.

Crystallized sodium sulphite does not need such careful preservation from contact with the air as does the anhydrous sulphite. This holds from the fact that in the case of the crystals, especially if they are large, the air cannot have as much action as it does upon the minute grains of the anhydrous salt, which, weight for weight, expose a far greater extent of surface. But there is, I believe, a still further cause in the fact that the anhydrous sulphite easily absorbs water, and the heat caused by its hydration facilitates the oxidizing action. While anhydrous sodium sulphite, therefore, appears theoretically preferable, and from its powdered form more convenient in practice also, its use is not to be recommended without qualification.

The simplest way to keep sodium sulphite in the solid state is to preserve it in a bottle into which, before closing it, a stream of ordinary house gas from a burner is turned for a moment to drive out the air. Sodium sulphite in solution keeps much worse than in the solid condition, and in this connection I can only confirm the results obtained recently by Mr. Sordes Ellis (*Photography*, July 3, 1902, vol. xiv., No. 712, p. 458). For example, a 10 per cent. solution of crystallized sodium sulphite, kept in a bottle half full, was found to contain not more than half the original quantity at the end of five days. Even if the air is completely excluded, it is not perfectly preserved, although I have not been able to determine the exact nature of the change that takes place in that case.

Turning to the bisulphites, we find that of all combinations of sulphurous acid with alkalies, potassium metabisulphite has the

* This paper, reprinted from *Photography*, forms an interesting supplement to the article on sulphites, published in our last issue. It should not be forgotten, however, that in America we are fortunate in having commercial sulphites of remarkable quality, in which the imperfections mentioned by Professor Namias are not likely to be found in practice.

best keeping properties. In making it by treating the solution of potassium carbonate with sulphurous acid, when the quantity of the latter corresponds to the bisulphite, metabisulphite is deposited in the form of fine crystals which contain no water of crystallization. Its composition, therefore, is not rendered uncertain by reason of contained water. It has a faint odor of sulphurous acid, and perhaps this slight liberation of sulphurous acid is the chief cause of its good keeping properties, since the particles are, as it were, enveloped by it and protected from the air. It also keeps almost perfectly in corked bottles, even if these are only half full. After preservation in such a bottle for two years, a sample of metabisulphite on examination was found to contain 55.05 per cent. of sulphurous acid, the theoretical amount being 57.65 per cent. The shortage of sulphurous acid in this case also must not be looked for in the form of sulphuric acid—it is simply liberated as gas. In fact, in estimating the sulphuric acid I have not found more than 0.37 per cent. of SO_3, a quantity absolutely negligible and quite possibly formed during the examination.

Potassium metabisulphite, therefore, is both the product which contains the greatest quantity of sulphurous acid and that which keeps the best in the dry state. It may perhaps be asked how it is then that a product which seems so good does not enjoy greater favor in the preparation of developers? By calculation we find that the best crystallized sodium sulphite (which, as already pointed out, contains generally not more than ninety per cent. of crystalline sulphite properly so called) contains barely twenty-two per cent. of sulphurous acid, while metabisulphite has at least fifty-five per cent. It will be seen then that we can afford to pay two and a half times as much for the metabisulphite as for the crystallized sulphite. Its actual price is not much more than this, while at the same time we get the great advantage of having a product which keeps so much better.

Metabisulphite may be employed in all developing solutions without exception by substituting for the crystallized sodium sulphite recommended about two-fifths of the quantity of the metabisulphite, neutralizing its acidity with a little caustic soda or potash. This last point is very important, because the acidity of metabisulphite partially neutralizes the alkalinity of the developer, and causes the behavior of the developing solution to be modified. It should be noted also, especially with certain developers, that the acidity of the metabisulphite should be neutralized, not by adding a greater quantity of alkaline carbonate, but by means of caustic alkali; since the carbonic acid, which in the former case would be set free, goes to form bicarbonate, which retards the action of the solution. In the case of hydrokinone especially, the presence of this carbonic acid is by no means negligible. For each twenty parts of metabisulphite employed we should add about seven parts of caustic soda or one part of caustic potash. With certain developers which have a more energetic action, as, for example, metol and edinol, we need only increase slightly the quantity of carbonate; there is no need to use any caustic alkali.

Metabisulphite, which keeps so well in the dry state, does not do so in solution. In this condition, if it is kept in bottles filled up to the top and well corked, it keeps much better than sulphite, by reason of the fact that the sulphurous acid liberated protects the surface of the liquid somewhat from contact with the air, but in open vessels there is not much difference between the keeping properties of sulphite and metabisulphite.

The other bisulphite in use is, theoretically, sodium bisulphite. It contains a little more sulphurous acid than potassium metabisulphite. In practice, however, it usually contains much less, due to the fact that it is much less stable. It loses its excess of sulphurous acid much more easily than metabisulphite, and tends to become anhydrous sulphite, with the keeping properties of which I have already dealt.

In an article published in the September issue of *Il Progresso Fotografico*, I showed that bisulphites in general, and especially potassium metabisulphite and acetone sulphite Bayer (in which the active material is sodium bisulphite), are very efficacious for correcting overexposure. It does not seem to me to be possible to correct overexposure to the extent of several thousands of times, as Precht claims (who seems to

attribute this property to acetone sulphite only, although it is one which attaches generally to the bisulphites), but it does seem possible, at any rate, to correct overexposure up to a hundred times at least of the normal.

From experiments in which solutions were used, the alkalinity of which was very carefully ascertained, it seems that when metabisulphite is added to a developer the developing action stops, or is practically stopped, when, if the bath contains caustic alkali, that caustic alkali is completely saturated, or, if carbonate, when all the carbonate present is transformed into bicarbonate. In cases of great overexposure, the quantity of bisulphite which may be necessary to correct its effects may be such that the developer only exercises on the overexposed silver bromide in the film the most minute reducing action imaginable.

A WORD ABOUT PRICES.

THE question of prices is one of perennial interest to photographers. For a few men here and there in the larger towns the solution of the question hinges upon the introduction of new ideas or exclusive styles—something different from what is offered elsewhere. But in the smaller towns, where perhaps half a dozen photographers divide among themselves the business obtainable from, say, twenty thousand possible customers, the intensity of competition frequently tempts the less progressive men to get business by making the price an inducement. A new size, smaller than the regular style, is introduced; the print is trimmed oval or circular in shape, and a mount of extra size is used to give the small print attractive proportions. This is usually the thin edge of the wedge of demoralization. The other galleries meet the cut by devices at once similar but different. The end is inevitably disaster.

Dealing with this use of small-sized pictures Mr. C. A. Zimmerman, the veteran portraitist of St. Paul, writes in the *Northwestern Recorder* as follows: "It is a good business proposition to make the smaller sizes, such as ovals fat or lean, and panels, and from an artistic standpoint the work should have a variety of forms and a very few conventional sizes; but by all means make them at a living price. No business will bring in a fair return unless based on correct values. If you are getting a fair price for your work and some mistake in judgment or fear of a rival induces you to cut your price in half, your stock and time expense will more than double, and you will have to increase your gross receipts to more than double to equal what you formerly made *net*, and you may have to use a magnifying glass to find any *net*.

"Your stock dealer is not at all elated over the increased orders you are sending him as the result of your mistaken business policy; he realizes from your and your rivals orders that you are cutting throats as well as prices, and consequently fears to fill your orders, knowing from the standpoint of a good sound business man that your prompt payments will soon lag, and will eventually as sure as fate fail to come at all. A change has come too over the character of the stock houses of to-day. The dealer is not turning out every day some new man and stocking him up to come into your town to divide the business with you, perhaps to ruin it, and where you have been doing a good business, to be all but wrecked by the new comer. The dealer has realized, too, that your interests and his are mutual, and to-day you are able to send in your orders with confidence and a good knowledge of what the result will be; verily your condition to-day does not much resemble that of the pioneers of photography, who were compelled to evolve all their processes and themselves originate many things that were afterward taken up by manufacturers and dealers and were thus disseminated. To-day many bright minds are working to a common end, that of the betterment of processes, tools, instruments, and materials of our profession, as well as methods, and if with all this support and coaching we cannot forge ahead we ought to be permanently placed and made stay at the foot of the class."

This is practical wisdom and, coming as it does from one who has spent his life in professional portraiture, deserves the attention of photographers struggling to build up a business in the small town.

CRAYON PORTRAITS, TWO DOLLARS, FRAMED—HOW MADE AND SOLD.

THE man was making crayon portraits. It was a lightning process.

He squirted on a little crayon juice, smeared it over the face, touched up the eyes, the lips, the ears, rubbed in a cloud of background with his first and second fingers, laid it aside and took up another. Portraits were piled as thick about his studio as briars in a June blackberry patch.

As he worked he talked.

"It used to be," said he, "that crayon portraits were a labor of days. Now they are the work of minutes. It's all owing to the solar prints.

"It's more a business now than an art, though so far as the likeness is concerned the solar print is far ahead of many of those old freehand drawings done by inferior artists twenty years ago. At least, the solar print is a likeness which stays there unless we take it out.

"Every State in the Union is covered with our men. We sell crayon portraits from Maine to California. Nobody with a hankering after a crayon reproduction of his countenance is allowed to go without one, and you can see by the stacks of portraits in this studio how many harbor that hankering.

"We have our agents in every little town, taking orders and distributing the pictures. From the towns they go into the country, scouring it, driving about from farmhouse to farmhouse in their little sidebar buggies, here, there, and everywhere.

"First they take orders. They get little faded, old-fashioned pictures of people dead or alive, daguerreotypes, tintypes—anything with a face. They send these to New York or Chicago to have solar prints made of them.

"The big houses there make these prints. Then they send them to us to finish."

And he finished another. It took him exactly ten minutes by the clock to execute the finish of this portrait, which was that of a negro with thick lips and eyes consisting principally of whites.

"We artists get fifty cents apiece for the portraits," he continued. "The house gets $2 for them, framed. It doesn't seem much, but when you think of the thousands they sell it is different.

"The work is carried on wholesale. We make the portraits and the agents deliver them to our customers.

"They give the orders for the frames to any wholesale house in the largest town of the State. These frames are sent direct to some little town.

"The agent goes to that town with his packages of portraits. He stops at a boarding-house and engages a room.

"Then he goes to the freight depot, gets his frames, has them sent to his room, hires someone to help him, and frames all the portraits there. When he has finished framing them he hires his little sidebar buggy and starts out to get the money for them.

"This is not so easy as it would seem at first blush. He has a good deal of difficulty in collecting it, particularly from the negroes.

"In the South it is the negro who wants his crayon portrait, he and the poor white. Simple, poor people always want themselves reproduced, that is to say, perpetuated in crayon portraits. I don't know why.

"Anyway, he starts off, say, to find Sam Johnson. It's a curious thing, but you ask a negro where his friend is, and he never knows. You've got to employ some ruse to get the knowledge out of him. You'll say:

"'Do you know where Sam Johnson lives?'

"And he'll open his mouth and stare at you blankly without replying, or he'll answer your question with another: 'Whut dat you say, Mister?' he will ask.

"You repeat the question, with the same result.

"If you stood there until doomsday, he wouldn't tell you. He's afraid you are a constable come after Sam Johnson; and if you catch him alive, you've got to walk over his dead body. No. You must go at him like this, in a roundabout manner, picturesque and suave:

"'I've got a portrait of Sam Johnson here in this buggy. Can you tell me where I can find him? Do you know where he lives?'

"He immediately wakes up.

"'Oh!' he cries, 'Sam Johnson! Oh! You mean Sam Johnson. Why ob co'se I know whar Sam Johnson libs. He lib right 'roun' de cornah dar, up de hill a li'l, in the fust yaller house you come to. Straight ahead, Mister. Dat whar Sam Johnson lib.'

"But if you think you've arrived at the end of your trouble in finding the house that's where you are mistaken. When you find Sam Johnson it is necessary to go the most circuitous possible way round in order to induce him to acknowledge his own identity.

"You must prove that your intentions are strictly honorable; that you are not onto the chickens he has been stealing, and are not going to put him in jail. When you have at length overcome this difficulty the thing to do is to make him cough up the money.

"This is not the easiest thing in the world to do, either. He'll take the picture and look at it. Then he'll begin something like this:

"'Whut you come fotchin' dis heah pictur' 'round heah fer, Mister? You know I ain't got no money.'

"This seems to be unanswerable, but it isn't. His superstitions must be worked on. You go about it something in this fashion:

"'Now look here, Sam,' you say. 'You promised to pay for this picture, and those good, kind people up there in New York have made it for you cheap—dirt cheap. If you don't pay for it do you know what will happen to you?'

"'Whut?' he gasps, trying to turn pale, but turning only a pale black.

"'Nothing,' you tell him, 'only if you don't hustle around and get that $2 in double-quick time I'm going to bury this picture. That's what I'm going to do. And that ain't all. It ain't half. When it begins to decay, you begin to decay. I'm going to bury it deep, about six feet. It'll take about three weeks for it to begin to decay, then you'll begin to de——'

"But that'll be about all as far as Sam is concerned. The $2 comes hustling out of some old stocking foot before you can count Jack Robinson.

"It's funny, but I never saw people fuller of superstition than those 'way down South negroes."—*N. Y. Evening Sun.*

WHEREIN ANASTIGMAT AND RECTILINEAR DIFFER.

JUST as the proof of the pudding is in the eating of it, so the best test of a lens is in the work it will do. So argued an old-line professional some days ago as he showed us a fine example of architectural photography with the triumphant remark, "As good as anything the modern anastigmat can do, and less expensive." We have heard this remark so often that a glance at the other side of the question may be profitable. There is, of course, a decided difference between the modern anastigmat and the old-style rectilinear, and it is this difference which justifies the greater cost of the anastigmat—a difference of increased cost in production, and a difference in the results obtainable with the anastigmat as compared with the results possible with the rectilinear lens.

Some of these points of difference are clearly explained by Mr. John A. Hodges, an English authority, in an article recently published in the *Amateur Photographer*. We quote for the information of our readers.

"If one particular item of a photographic equipment may be regarded as more important than the rest, that item is undoubtedly the lens. The camera may be cheap and correspondingly nasty, and the tripod lacking in all the qualities that a good specimen of that fearful and wonderful, but indispensable, adjunct should possess, and excellent work, nevertheless,

may be produced, *if* the lens be of good quality.

"Very great, indeed marvellous, improvements have been made in the construction of photographic lenses during the past few years, and latterly the price of some of the best examples of these has been considerably reduced, thus bringing their acquirement within the reach of even the most economically minded photographer. We have recently been using a new lens introduced by Ross, and called the Homocentric, which may be regarded as an illustration of the happy combination of the two attributes to which we have referred, namely, perfection of optical quality and moderate cost. The 'Homocentric,' as its name implies, is of the anastigmatic type—*i. e.*, it combines flatness of field with an absence of astigmatism, qualities which differentiate lenses of this type from those of older construction.

"But before referring more in detail to the results of some careful practical tests undertaken with this particular instrument, it may be useful to explain in a popular, and, as far as practicable, non-technical way, 'the why and wherefore' of the superiority of the anastigmatic form of lens over those of earlier make.

"If we take a negative of the front elevation of a house, for example, with an ordinary rapid rectilinear, or rapid symmetrical, using the full aperture, we shall notice that only a small portion of the centre of the image is critically sharp, and that the definition rapidly falls away toward the margins of the plate. This want of marginal sharpness is a fault inherent in the lens, owing to the mode of construction adopted, and can only be remedied by using smaller stops—of course, at the expense of rapidity. Therefore, with any lens of this type, if we wish to make quick exposures, we must be content with less definition in our photographs, for if we stop down sufficiently to secure sharp definition to the margins of the plate, we shall at the same time reduce its rapidity to such an extent as to render very brief exposures impossible.

"But the employment of an anastigmat entirely overcomes this difficulty, for a photograph of the same subject as that suggested, taken with one will be equally sharp from centre to margin, and that result may be attained with the open aperture of the lens.

"The less perfect nature of the image produced by a rapid rectilinear is mainly due to three optical defects inherent in the system of construction adopted—astigmatism, spherical aberration, and roundness of field. Astigmatism produces a want of sharpness in the marginal portions of the image; it is present in a marked degree in all lenses of the old types, and accounts for the fuzzy, out-of-focus appearance at the edges of the picture. In modern "flat field" lenses the error is compensated for, and in those of the best types practically eliminated.

"The second defect—spherical aberration—renders it impossible to obtain a sharp focus at large apertures with lenses of the old construction, all of which exhibit this fault in a greater or less degree. It may always be cured by the use of smaller stops, but, of course, at the expense of rapidity. Lenses of the rapid rectilinear type, with extremely large aperture, such as $f/6$, always possess marked spherical aberration, and this accounts for the difficulty almost invariably experienced in obtaining a sharp focus when using them at full aperture.

"The term 'curvature of field' is in itself explanatory; it means that the image, as formed by the lens, instead of being formed on a plane of flat surface, is curved or saucer-shaped, the result being that when it is received on an ordinary plate or film, some portions of the image must suffer in definition. This defect is always present in old types of lenses, but is practically absent in newer forms.

"It will be apparent from the foregoing observations, that an anastigmat has a far higher range of utility than an ordinary rectilinear. For example, the aim of the hand-camera worker, and of those who use small plates with a view to their subsequent enlargement, is to produce as sharp and as perfect small originals as can be obtained. By using an anastigmat the hand camerist will be enabled to use a larger aperture, and, at the same time, obtain better definition than would be possible of attainment with an ordinary lens. This will give him the advantage of using slower

plates, which are both cheaper and far easier to obtain good results upon than those of extreme rapidity; and, further, he will be able to make exposures upon subjects and in light which it would be hopeless to attempt under less perfect optical conditions. It may be said that lenses of the ordinary rectilinear pattern, working at apertures quite as large as those of the anastigmats, are obtainable; but it will be found that owing to the amount of spherical aberration present such lenses, even when made by the leading optical houses, cannot be employed at their full aperture when critically sharp definition is required, and the results obtained, when used in hand camera under such conditions, are often extremely disappointing."

The illustration accompanying Mr. Hodges' article is, as he says, "An exemplification, both of the advantages of the anastigmatic form of lens and of the excellence of the particular lens with which it was made. It is a somewhat gloomy interior, taken on a dull day, the subject being an old carved oak doorway in Dunster Priory Church. One minute's exposure proved to be sufficient with a 5-inch Ross Homocentric, working at $f/8$; but if an ordinary rectilinear had been employed, it would have been necessary to have stopped down to $f/16$ to have secured similar definition and to have quadrupled the exposure.

"The Homocentric lens possesses," concludes Mr. Hodges, "all the qualities and advantages to which reference has been made, and it is, comparatively speaking, moderate in price. . . . Its flatness of field, and critically sharp defining power are remarkable, and place it in the very front rank among modern anastigmats."

These points are clearly demonstrated in the illustrations of Messrs. Ross' new catalogue, just received, containing full particulars of the Homocentric and examples of its performance.

HERKOMER ON PORTRAITURE.

In a recent number of *The Magazine of Art* Professor Hubert von Herkomer discusses portraiture from the popular point of view, incidentally saying many things of interest to the photographic portraitist. We quote:

"There is hardly a grown-up man or woman who does not love to hear a difficult subject simplified for a juvenile audience. Now, for the word 'juvenile' substitute the word 'lay,' and imagine yourselves for once a lay audience listening to a painter talking in the simplest and most untechnical way about portrait-painting. I call this first paper on portrait-painting 'popular' on these grounds, and for the further reason that I think it well to make some subjects belonging to our art so clear and simple that a non-artist could retain some definite ideas upon them.

"Now, has it ever occurred to you what a wonderful thing is a good portrait; how it all but breathes, all but speaks? How the innermost soul of the subject is there, indelibly fixed, to live on through centuries? How, apart from the life-likeness, it speaks to the painters of all ages as a work of art?

"Let us investigate some of the mysteries of portrait-painting, or rather of the way we painters go to work to produce a portrait—always remember, from a popular and not a technical point of view. The first consideration is, of course, the subject; in other words, your sitter. I need hardly say it is not possible to commence operations on first sight of the sitter; it is necessary to become acquainted with him from many points of view. The painter must 'see through all hinderance' the inner man or woman, must satisfy himself that he knows the broader characteristics of the sitter's personality before he can go farther, and select, first of all, an attitude that will lend itself to artistic treatment, and yet be wholly illustrative of the main peculiarities of your sitter.

"But with long practice it is surprising how quickly one can get to know all that is necessary before beginning the closer scrutiny which takes place in the actual performance of the painting, as this is ac-

companied by the most powerful engine for the discovery of the inner man—viz., conversation. Happy is the portrait-painter who can talk while he works, and happy the sitter if he may talk or listen.

"The common cant tells you to paint a man 'as he is,' but fails to say at what moment. Now a mood, the weather, the light, sympathy or antipathy, health or sickness, cheerfulness or melancholy, will so alter a man 'as he is' that he may be scarcely recognizable as the man that 'was' — something wholly different — a short time back. It is merely common justice to humanity that you should take some pains to catch a sitter at his best. It is only to wait until the most expressive aspect comes over the face, and then to seize it, for it is sure to repeat itself often enough, if your conversational engine is in sensitive working order, to secure it permanently in the picture.

"As I have already said, the first duty is to fix an attitude that shall in itself constitute half the likeness, as well as secure the best side of the face—a matter of the greatest importance.

"Now, two points frequently clash: the view of the face that will lend itself satisfactorily to artistic treatment, and the view that will give the most comprehensive illustration of the man's character. One or the other has frequently to be sacrificed. To get merely the picturesque aspect of the sitter is certainly to satisfy the artistic craving of the painter's nature; but to get that at the expense of the likeness or interpretation of the man is not to satisfy those who are to possess the portrait, and who commissioned you to do it. On the other hand, to leave out that very quality which makes the work live through centuries as a work of art is to deprive the artist of his first right. It is the combination of the two qualities that constitutes the successful work, and satisfies not only the painter's hopes of posthumous fame, but the man who pays for the picture.

"After the attitude is decided upon, in portraiture, there is still another grave question to be settled before the painting can proceed, and that is the arrangement of light. I have always found two lights in the studio more satisfactory; that is, a top and a side light. The top gives full roundness and modelling, and the side, coming straight into the face, dissipates the heavy masses of shadow produced by the top light alone, which would be more disastrous if used alone than the side light. The absence of heavy shadows enables the painter to give the fullest attention to subtle expressions, especially of the eye, and although this very absence of shadow increases the difficulties for the painter, it is well worth the additional struggle.

"I mentioned the eye. The eye holds the key to the character. The eye speaks the language that is understood by all mankind. The eye is charged with the thoughts of the mind behind it; indeed, you discharge your innermost soul through your eye. And painting alone can reproduce the look in an eye that would baffle any other form of interpretation. Yet, strange to say, some painters, indeed some of our best, have carefully evaded the eye. But a portrait without the living look in the eye is but a soulless thing.

"My experience in portraiture has almost wholly been limited to the English and American nations. I have only painted a few Germans and one Russian lady. But between the English and American nations there are marked differences in demeanor and habits of thought which materially affect the sitter's personality for the painter. The Englishman, for instance, has an ingrained shyness which often uncomfortably disguises the strong and courageous inner man, and puts the diagnosing painter off the scent and on the wrong track. Not so the American; he is cool, collected, and self-possessed, and is himself, so to speak, wherever he is. He is proud of this, and, being a student of human nature and a reader of character, puts the painter at once on his mettle, for he makes the painter feel he has to read a reader, and is undergoing precisely what he attempts to make his sitter undergo. This is a mutual advantage, and saves time. Being quick acting, the sympathies or antipathies are quickly settled. But the Englishman is shy in asking your terms; shy when he sees himself on the canvas; shy in offering you the money when the work is done, or, if a presentation portrait, shy when the portrait is presented to him; but, with strange inconsistency, seems to throw aside all shyness

in his real anxiety to be exhibited in the Royal Academy.

"Truly, an art that can bring a living individual before our eyes is a great art. All the more should it be used to represent mankind in its noblest, its most beautiful, its heroic, or its moral aspect, and this be it in subject-picture or portraiture. Remember, no book, no poem, tells its tale to all the world as the picture with its universal language; and no biography, no history, is fully told without the aid of the painter's art. We hold the history of the world in our hands by painting the men who make history. Great indeed is the art that can satisfactorily portray history-making man, but great only if used in its most dignified and sober garb."

TONING BROMIDE PRINTS WITH HYPO AND ALUM.

BY HAROLD BAKER.

THE newer methods of toning by bromizing or iodizing the image of a bromide print, and converting it into sulphide of silver by means of some evil smelling compound, bids fair to oust the hypo and alum method from popular favor. But it is a method that will produce very good results, although it has certain eccentricities that at first are quite unaccountable.

Sometimes a print will absolutely refuse to change color, even if it is boiled for hours. At other times certain parts of a print remain black when all the rest of the print has become good rich brown, and there seems no reason at all why they should not change color like the rest. Then at other times prints will blister or even run off the paper altogether. The last two defects are the most tantalizing, and they often make their appearance when least expected, as every precaution has apparently been taken to guard against them. I will try to point out how to avoid most of these troubles.

In the first place, the color of the toned print depends on the exposure it has received previous to development. Underexposure and development with metol, or any of the rapid developers, will produce images that refuse to tone beyond a purple black. To secure good sepia colors full exposure must be given, followed by a slow developer, such as hydrokinone, or rapid developers very much restrained with bromide of potassium or weakened by previous use. As a rule, the exposure for a print intended to be toned should be about twice as long as it should for one that is to remain black, and the color of the image, when fixed, ought to be greenish. A good bright-looking, black print will not give a good sepia. If this overexposure is carried too far, however, it produces a print too yellow in color.

The irregular patches which refuse to tone have nothing to do with exposure, but are caused by hypo and developer being on the print at the same time. They often appear at the corners which have been touched by the fingers during development, and the black marks may be seen in streaks from the corner, showing that the fingers were not free from hypo. Similar black marks sometimes appear in other parts of the print; these are caused by developer remaining on the paper during fixation. They may be avoided by moving the print quickly about the moment after it is placed in the fixing bath, or, better still, by washing off the developer before fixation. I have never found black "untonable" marks from any other cause.

After washing it is safest to alum the prints and dry them before "cooking"; but it is not absolutely necessary, for I have often put prints straight from the fixing bath into the hypo and alum. Once I tried this when the solution was warm; the result was a clean piece of paper. The cooking solution must be quite cold when the prints are placed in it, and the temperature raised slowly. The most convenient method is to use a large porcelain dish for the toning solution and place it upon an old platinotype developing dish filled with water, and a gas-stove beneath. The prints, either dry or wet, but previously alumed, are then put into the cold solution and the gas lighted. At intervals of a few minutes the prints are turned over, and in about half an hour they should show signs

of toning round the edges, and in about an hour the change of color should be complete. As the solution gets warm the surface of the prints should be felt with the fingers to ascertain if they are getting soft; if a slimy feeling is perceived, some powdered alum should be sprinkled in at once, or the surface of the prints may blister, or even melt off the paper. A little formalin added to the solution may prevent this. But if the prints have been well alumed and put into cold toning solution, and the temperature raised gradually, the film should feel leathery and tough.

When a large batch of prints is being toned the process may be accelerated. They must all be placed in the cold solution at first, but when the temperature has been raised to a point which the hand can just bear, the large porcelain dish should be lifted off the metal one below, in which the water is boiling; hypo and alum are added to this, which at once makes a fresh toning solution, and the prints may then be taken one at a time and dipped into the boiling solution. The change of color is then instantly brought about. A slip of wood is useful for raising the corner of the print so that it may be lifted out. It is scarcely necessary to say that the fingers should not be dipped into the boiling solution. The prints should be returned to the first dish to get cool. After all the prints have been finished off in the fresh boiling solution they should remain in the first bath to get cool, and may then be washed. The film of the prints becomes rather tender during the washing, and they should be handled with care. When mounted the surface should be sponged carefully to remove the white precipitate of the toning solution, which often clings to the gelatine.

A freshly-made bath will reduce the depth of the print considerably; it is therefore well to tone a few waste prints before using it regularly, but when the method suggested above is adopted, and the prints started in a used solution, and then removed to the fresh boiling one, no more reduction takes place than if the first solution were used till the end. After the prints are toned the fresh solution should be added to the old stock; this keeps it in good working condition.

A certain amount of reduction takes place even with an old solution, but it is only slight. The very delicate tones of a print seem to increase in strength, while the very deepest shadows do not seem to change at all; but the dark tones become reduced a little. The print which will give the best result when toned should be of a brownish-black with a touch of green in it, the dark tones should appear clogged up and confused with the deepest shadows, and the light tones should appear a little too light.

As far as permanence is concerned, I have found no change after some years' exposure; and if a print is too dark the ordinary reducers do not appear to have any effect upon the image. Tincture of iodine and cyanide will, however, reduce the depth, but the result is seldom satisfactory.—*The Amateur Photographer.*

PRACTICAL POINTS FOR BROMIDE PRINTERS.

BROMIDE prints are best fixed face downward in the solution, provided that care is taken to see that no air-bells cling to the under surface.

After development of a bromide print the dish should be thoroughly rinsed out, for although the developer may be of a kind which has the reputation of not staining, a little discoloration of the drainings which remain at the bottom of the dish will not be noticed in the dull light of the dark-room, and the next print is nearly certain to be stained in consequence, and it will be a stain not easy to remove.

Smooth bromide paper may be rendered quite sufficiently transparent to admit of its being used for negatives, or it may serve as a positive transparency from which negatives can be made by contact. Apply castor oil with a piece of rag to the back of the print; place the print between clean blotting-paper, and apply a warm iron to the back. This operation should be repeated, and the blotting-paper changed

until it ceases to take up superfluous oil, when the paper print should present a transparent appearance.

In his admirable little book on *Photographic Enlargements*, Mr. G. H. B. Wheeler says of bromide enlargements—and it applies, of course, equally to bromide contact prints—the washing may be aided, and consequently shortened, by adopting the following method occasionally during the operation: Empty the dish and lay the print on the bottom face up. Now raise the end opposite the outlet and allow the water to fall from the tap on the print at the raised end, and flow off quickly at the lower side. While in this position pass a flat camel's-hair brush—such as is used for copying purposes—backward and forward over the surface, taking care that the swollen emulsion is in no way abraded. The water swills the hypo off as it is disturbed by the brush.

Should the water tap be at some distance above the sink or dish, splashing will occur, which, though not noticeable at first, will soon gradually sprinkle the worker, and everything around, including even objects which might have been thought to be beyond the range. This splashing can be easily prevented if a piece of twine be fastened to the tap, so that it will hang from the tap to the dish beneath, and so act as a guide to the water. Double the twine around the top of the tap and make a knot over the outlet, and another underneath to keep the string in position. A thin stream of water will run down the conductor and keep the water from splashing about.

Bromide prints and enlargements which are too weak may be intensified by flowing over the usual bichloride of mercury solution, and then, after bleaching has taken place, well washing and applying the ammonia in the ordinary way. This course usually gives a slightly browner tone to the whole, which is as often as not an advantage.

EDITOR'S TABLE.

PHOTOGRAPHERS who look back with favor to the old plain silver prints and regret their passing can find an effective substitute in Polychrome Paper, made by the California Camera Co., of Alameda, Cal. Polychrome is a modified, perhaps we should say perfected, Kallitype Paper, simple in its manipulation, and yielding prints very closely resembling fine platinotypes or engravings with rich velvety shadows and a wonderful range of tone.

THE January number of *El Boletino Commercial*, official organ of the Latin-American Club of St. Louis and Foreign Trade Association, contains an excellent portrait and editorial note of Mr. F. Ernest Cramer, the popular Vice-President of the G. Cramer Co., who has just been elected president of the Latin-American Club. We are confident that our readers join with us in congratulating the Association upon its choice for president.

AN exhibition of photographs suitable for advertising purposes or art studies, by J ELLSWORTH GROSS, was given at the Waldorf-Astoria during January. Some 300 prints were displayed, demonstrating in an interesting way the advantages of photography in the illustration of advertisements. Among the prints were the original studies used in many advertisements seen in the popular magazines. Our readers will recall the illustrated article on this subject, written by Mr. Gross and published in the January issue of this MAGAZINE.

During our visit to the exhibition we were shown a portfolio of fifty selected examples of photography by well-known photographers. This portfolio is to be published by subscription at an early date. Those interested in the project can get further particulars from Mr. Gross, addressing him at 3600 Michigan Avenue, Chicago.

THE engraving which illustrates the advertisement of the American School of Art and Photography, Scranton, Pa., among our announcements, is an excellent portrait of Mr. J. B. Schriever, the president of the School, and a photographer well known in the fraternity by the quality of his work. We are glad to hear that the Scranton School has already achieved signal success and gladly commend its services to our readers.

THE significance and practical utility of the "HURTER and DRIFFIELD SYSTEM" of Speed Determination, and the Photo-chemical Investigations of these well-known experimenters are clearly explained in *The Photo-Miniature*, No. 56, recently published. The monograph is from the pen of Mr. Vero C. Driffield, and is illustrated in such a way that the photographer can, if desired, construct the necessary apparatus for his own use. There have been many requests for an explanation of the H. and D. system, and we congratulate the publishers of *The Photo-Miniature* series upon their enterprise in placing the information before photographers in such a convenient form. [Tennant and Ward, New York, 25 cents.]

By Fred J. Feldman, El Paso, Tex.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. APRIL, 1904. No. 568.

HALF-TONE ILLUSTRATIONS AS AN AID TO THE PROFESSIONAL.

BY THE EDITOR.

One of the most noticeable features of modern life is the ease with which we accommodate ourselves to improvements and developments without realizing that we are receiving anything out of the ordinary course. This trait of American character may be seen on every hand as, for instance, in the development of rapid transit. In the olden days facilities offered by horse-cars seemed ample to the requirements of the ordinary citizen, even in the most progressive cities. As improvement succeeded improvement and the horse-car gave way to cables, trolleys, and elevated railroads, to be followed in turn by subway and tunnel transit, the American public appropriated each development as it came, meanwhile reaching out for further and better means of transportation. Vast as the difference is between the facilities of to-day and those of two decades ago, they are still far below the demands of the travelling public, and the vastness of the difference is only realized when the methods of the present day are contrasted, side by side, with those of a previous period.

So it is in almost every walk of life, and so it is in a marked degree in the history of illustration. Its development to-day is largely due to the rapid printing press and its use in the arts, sciences, economies, and manufactures of the world. Never before has it been possible, as it is to-day, to reproduce from type blocks works of art, either from the hands of the old masters or from those of more recent years. With all its perfection and the wealth of illustration that decorates the pages of almost every class of printed matter, the public scarcely realizes the importance and value of the half-tone process. The world goes on accepting all that is given to it with scarcely a thought of the tremendous advantage afforded to readers of the present-day literature over that of years ago. As an object lesson to the photographic fraternity alone, the half-tone plate has rendered and is daily rendering service of the utmost value. One needs only to glance through the pages of the photographic periodicals to find pictured, in greater or less perfection, work of the modern portraitist, by which his methods of lighting, posing, arrangement of accessories, and handling of photographic detail throughout may be closely studied by every practical worker in the craft. Time was, and not long since, when the only way to see the work of the best men in photography was by studying it from silver prints made at first hand in the studio of the professional worker.

The photographic journals of little more than a decade ago depended almost wholly upon silver prints for their illustrations of portrait work, and it is only by comparing an issue of that period with a production of the same journal under date of the current year to demonstrate the tremendous strides that have taken place along these lines. Does the average worker realize the

advantage that is placed at his hands by this development of the half-tone plate? Does he not too often skim through the pages of the illustrated journal without getting from them the lesson in his own art that he might easily secure with a little careful analysis and thought? If the half-tone plate possesses value to the photographer it is because it is able to render those delicate color values between black and white with a very close approximation to the original. This process is the only commercial one that will render these tones.

The progressive photographic journal of to-day directs particular attention to its pictorial department. There is, perhaps, no better illustration of this statement than may be found in the recent volumes of WILSON'S PHOTOGRAPHIC MAGAZINE. That there are many who do appreciate the advantages of the half-tone process and who do gain from the reproductions published a real good and incalculable assistance in their work has been known to the publishers and editors for many years. That there are many more who do not gain from them all they might, there is strong reason to suspect. The value of the process is equally to be found and made use of in the columns of the daily press, commercial and lay publications of all kinds, and in the scientific world. It is earnestly to be hoped that an increasing appreciation of good half-tone illustration, as applied to the work of the average photographic studio may become apparent as time goes on.

This journal stands ready to reproduce in the best possible manner good specimens of photographic portraits from whatever source they may be gleaned. If these specimens are carefully analyzed, they will afford lessons of value to almost any photographer who will devote time to their study. It may not be that all these lessons would be those that should be followed, but that each will teach some lesson of real value can scarcely be denied.

COLORED DIAPHRAGMS, THEIR USE IN SAVING RETOUCHING AND ISOCHROMATIC EFFECTS.

BY A. J. JARMAN.

ONE of the most expensive items to-day in a photographic establishment is the retouching account, and any method by which this item can be reduced must prove to be of value to the photographer.

Resort has sometimes been made to the introduction of a thin sheet of celluloid or mica between the printing paper and the negative; although this provision does take off the harsh effects contained in some negatives, in the majority of cases there is produced a blurring of the whole image when the ordinary method of printing is adopted. This defect can be overcome to a considerable extent by printing at the bottom of a box the sides of which are about one foot high, and placed facing the sky, so that only parallel rays of light reach the printing-frame, but this method is too troublesome and takes up too much time to produce a satisfactory result.

There is a plan by which retouching can be saved by the use of a special diaphragm, which has an extraordinary effect in producing very delicate negatives, whether by the wet collodion process or with the modern gelatine dry plate. In the production of these diaphragms it will be necessary to procure a sheet of polished plate-glass; the thickness will be of no consequence, only it must be smooth and even, because this forms the basis of the production of every diaphragm to be made, and will enable every diaphragm to be of an equal thickness, which is a matter of importance in the attainment of success.

In the first place, it will be necessary to procure a small quantity of aniline blue and aniline violet—the small packages of dyes known as "diamond dyes" will answer the purpose perfectly—or Judson's dyes. Each packet may be dissolved in four or five ounces of hot water in a clean glass bottle and allowed to cool off, to be at hand ready for use when required. In addition to the dye solutions and a sheet of

polished plate-glass, which should be about 10 x 12 inches or 11 x 14 inches, it will be necessary to procure half a pound of normal collodion, some waxing solution made up of 40 grains of white wax in 4 ounces of sulphuric ether, some clear white gelatine and a small, clean stoneware jug or pitcher and a glass stirring rod, a medium size kerosene lamp chimney with a piece of clean cheese cloth tied over the top, and a pledget of absorbent cotton carefully pressed in upon the cheese cloth, so that when the lamp chimney is inverted it will act as a filter. Weigh out half an ounce of gelatine, cut it into shreds with a pair of scissors, place these shreds in the jug and pour upon them 5 ounces of filtered water, allow these shreds of gelatine to soak for half an hour, then place the jug or pitcher in hot water and allow the water to boil, stirring the gelatine mixture occasionally. When all is dissolved, add 2 drachms, by measure, of the violet dye and 2 drachms of the blue, stir well, so as to allow the dye and gelatine to become thoroughly incorporated. Pour this mixture into the lamp-glass filter and allow it to filter into another clean jug, previously heated. The piece of sheet glass must now be cleaned and rubbed well all over the plate with a little of the waxing solution. This waxed surface must now be polished off with a soft, clean cloth, and the plate coated over with the normal collodion, allowing the excess of collodion to run back into the bottle. This being done and the surface set, place the collodionized plate into a tray of clean water, collodionized surface upward, rock the tray occasionally, then rock the plate in a stream of running water until all greasiness disappears, drain the plate for about a minute, then coat it all over upon the collodion surface with the dyed gelatine solution, which is best done upon a levelling stand, until the solution appears to stand almost one-eighth of an inch above the surface of the glass. If there is any difficulty experienced in getting the gelatine to flow evenly, it may be assisted with one of the fingers. By this means the collodion film will not become injured. The plate now being coated, allow it to stand levelled in a place away from dust to dry, which may take about three days. When dry (perfectly dry) cut around the edge of the film with a sharp penknife, leaving about a quarter of an inch margin, lift the colored film at one corner, then pull it off the glass. It will present a highly glazed surface upon one side, and upon looking through it the change of color of every object is very remarkable.

To make the diaphragm, proceed as follows: Take the diaphragm out of the lens, one that is generally used, place it upon a piece of the dyed gelatine, trace the outline with the point of a pin, mark the hole in the centre, then cut this out with the tip of a sharp penknife by carefully running it round with the metal diaphragm pinned upon the top; the centre piece will now drop out, and the outside shape is made complete by cutting with a pair of scissors. Place this diaphragm in the lens in place of the metal one, then focus the object upon the screen. An extraordinary effect will be observed both in color and focus; part of the light passed through the lens is white light, while that which passes through the body of the diaphragm is violet blue. An exposure should now be made upon a person whose face is well marked with freckles; the time of exposure will be much shorter than usual. Upon development, it will be observed that the face is rendered very soft and delicate, and the usual decided outlines of the freckles are softened down to a considerable degree. It will be found that there is an easing-off effect upon all the shadows which reduces the work of retouching and gives very pleasing gradations.

If it is desired to try other colors, such as yellow, pale green, and similar colors, it will be found that the effect produced in photographing colored objects is on a par with the isochromatic plate when an ordinary photographic plate is used.

The dye employed may be canary yellow or a very small quantity of chrysanilin may be employed to give a deeper color, but this can generally be obtained by using a thicker film of gelatine when coating the plate.

In making up the colored sheets of gelatine it may be advisable to use two or more pieces of plate glass, so as to produce the sheets of different thicknesses, thus securing the diaphragm that answers best. It is not necessary to prepare and collodionize the

glass plates at the time of coating with the colored gelatine. They may be prepared beforehand and packed in a grooved box for safe keeping until required for use.

The only difference in coating a dried collodion surface and a freshly prepared wet one is that the warm gelatine solution does not flow so evenly, the surface being somewhat resistant. Providing the hands are clean all that is necessary is to guide the gelatine solution with the tip of one finger over the plate by pouring only a small quantity in the middle of the plate, then with a wiping stroke of the finger the plate becomes thinly coated all over. All that is necessary then is to pour the required quantity of solution upon the plate to obtain the desired thickness. The liquid then flows with perfect freedom to every part of the plate.

Where diaphragms are made up of the yellow tint or greenish yellow the result upon an ordinary dry plate in copying an oil painting, or a painting in water color, is quite equal in color rendering to a color sensitive plate. Nothing unusual in developer being required, the exposed plate may be started on slow development, and increased by increasing the strength of the developer. By the use of such diaphragms as described, not only can the cost of retouching be reduced, but ordinary plates can be used for portrait and other work, rendering color values that are only otherwise obtainable by the use of the ortho or isochromatic plates, and giving results that are peculiar to this particular kind of diaphragm.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

VIII. THE FOLLOW-UP SYSTEM.

THE logical sequence of a form letter ought to be more accurate. The logical precedent of a form letter in any line of business should be the institution of a follow-up system of some kind. What is a follow-up system, and why has it advantages to the ordinary photographic studio are questions that will undoubtedly be asked. We will, therefore, undertake to answer them at the outset of this paper, and in a manner that is hoped will be convincing. The writer's definition of a follow-up system would be that it is a method by which in any line of business the money expended for publicity may be made profitable, rather than wasted; a means by which an accurate record can easily be kept that will show, at any stage of the game, just what returns have been received from the publicity of the studio, up to the time of examination. If this definition be accepted as fairly correct there can be no doubt of its advantage to the photographic studio, as by its means, if a given line of advertising is unprofitable, and fails to bring returns, the fact will be demonstrated in a manner that cannot be refuted. The advantage of system in any line of business is not to be questioned, neither is it to be questioned that the lack of system is woefully apparent in a very large number of photographic studios. The whole conduct of the photographic business has, up to within a few years, been noticeable for its lack of system, and it is probably due to this very fact that the average photographer fails to realize the value of advertising.

The *Standard Dictionary* defines the word "system" as follows: "Orderly combination of, or arrangement, as parts, particulars, elements, into a whole; especially such combinations according to some rational principle or organic idea to get unity and completeness."

If, therefore, the photographer desires to keep tab upon the money he expends for publicity of his studio he must adopt some definite plan or system by which the facts relating to the expenditure, and the figures to indicate the returns therefrom, may be made to show side by side in such a way that he may readily compare one with the other, and arrive at some conclusion concerning the policy of continuing or abandoning the given line of publicity.

It is, the writer believes, a wasteful expenditure of money to put out a lot of advertising from time to time, spasmodically, trusting to luck for the returns without being able at any time to gather a definite idea of the productiveness or unproductiveness of the money spent.

The question of following up advertisements is an exceedingly interesting one in any business. There are many different ways of doing it; but that it should be done one way or another is a generally conceded fact among those who yearly spend large sums of money in the production of booklets, folders and special announcements of all kinds, as well as in the use of the daily, weekly and monthly publications of the country. There are, however, those who do not yet appreciate its value; and the writer is cognizant of one concern which annually spends large amounts of money in advertising of various kinds, until, in fact, they have estimated the approximate cost to themselves for each inquiry that they receive at a figure of $2.75; and yet with this tremendous cost per inquiry they do not follow up their advertising at all. Their catalogues and announcements are sent out broadcast, and no record kept of those to whom they are sent, excepting the original letter of inquiry, which is filed for one year, and at the end of that time destroyed. It seems hardly conceivable that in the present age of systematic advertising any business house can be so blind to their own business as thus deliberately to ignore the opportunity for turning a vast number of these inquiries into definite orders for goods. The same result obtains in any business where publicity costs money, and unless the advertising is followed up with some definite system, there is a vast amount of money wasted which might otherwise be converted into profitable orders.

Referring to one of the early papers in this series, it will be seen that the writer's business creed embraces the thought that advertising is intended to stimulate interest in the goods advertised, and that if an inquiry can be elicited from the reader of the advertisement, the prime object of the advertisement has been attained, and its full value has been consummated. From that point on it lies with the office or business manager to do "the rest;" and with a proper follow-up system, "the rest" should be comparatively simple. In the specific case of a photographic gallery or studio a follow-up system of the simplest kind is the one which is to be recommended, and is the one which can be found and carried out with little difficulty. The first step in the installation of such a system must naturally be the selection of a list of names embracing all those people of a given community whom the photographer desires at some time or another to have upon his books. This list should be prepared with the greatest care and completeness. Every possible source of information should be used in its compilation. In the cities and the larger towns blue books and society registers are almost always to be found from which such a list may readily be started. Telephone directories add another source from which many names may be drawn, and the local papers should be carefully scrutinized with every issue for society events, notices of marriages and births, and all sorts of local happenings in which the names of people are recorded. Each name, with full address, should be entered on a card specially prepared for the purpose, and these cards filed in alphabetical order in properly constructed drawers or cabinets fitted to receive them. An outfit of this kind is not expensive and should form one of the most important items of the stock in trade of a successful studio, next only in importance to the negatives which form the basis of its working capital. Such a card index as this once started will be found to grow very rapidly, and the photographer in whose studio it is installed will probably find himself in the habit of carrying a pad or blank book in his pocket on all occasions. In this book, or on this pad, he will enter from time to time the name and address of those with whom he comes in contact outside the studio or which come to him in the course of correspondence or in other ways; and every day or two the list should be checked off and such new names added as are not already there. Each card in such an index should contain ruled spaces not only for the name and address of the party whom it represents, but should also be ruled up and down and across with blanks on

which from time to time may be written the date and a symbol referring to some special form of advertising that is sent to the addressee at that time. On the same card there should be also blanks in which may be recorded any reply, inquiry or personal call resulting from this special advertising form, together with the date and any remarks pertinent to it. As each announcement is mailed to the list of customers included in the card index, the date and symbol should be entered, and a careful examination should be made at the expiration of, say, two or three weeks, with the purpose of finding out how many responses, if any, have been received. If replies have not been in sufficient number to satisfy the expectation of the advertiser, he should at once prepare a second letter or announcement of some kind bearing upon the first, and send it to the same list, entering upon the card a record of its sending, and noting each return therefrom as it is received. In such a way as this he may keep in personal touch with the results from every piece of advertising matter that leaves his studio. He may analyze the returns that come in, and a careful study will do much to put him on the track of a more profitable method of announcement for another time. It will frequently be found that returns from any one given announcement are very unsatisfactory, while another, less elaborate, less expensive, and from which he anticipated little return, may have been extremely profitable. This will give him a line on his work, and will suggest many ideas in his future policy of advertising that would be wholly impossible without some such system of tabulation and comparison. Let this said index card be kept entirely for the tabulation of publicity and responses, and do not attempt to mix with it any record of the orders received or the details of the studio work. Keep all such records, including the name of customer, date of order, size and number of prints, numbers of negatives, etc., on another set of cards properly ruled; and in such a way separate the advertising from the business end of the studio, remembering that the inquiry of the customer or his call in response to your invitation marks the end and finish of the advertising campaign. Do not let the amount of his order, be it large or small, get mixed up with the fact that he has responded in some way to the advertisement. This is the purpose of the publicity, and when the response has been made its end has been acomplished. From time to time go over the index and make notes from it of any callers or other responses to the publicity of the studio. Compare them with the actual orders entered upon the cards in the list of customers. Note carefully all who have inquired or otherwise expressed interest, whose names are not included in the list of actual customers, and make a special effort to find out why their interest has expired without being productive of definite order for work. Look then to the salesman, and if the returns from the inquiry are not satisfactory, do not lay it to the advertising policy.

To sum up the whole matter, then, the value and advantage attaching to the use of a follow-up system lies in the fact that in each specific case where a written or printed announcement or circular of any kind is sent to a person it is easily traceable, and if not productive it may be followed up by a second, third, or even fourth announcement at any time, and that all these records are easily get-at-able and available for use at a moment's notice.

Let us see how such a plan would work in actual experience. The photographer who has installed such a system in his studio comes in on a rainy morning, and after attending to the necessary details of the studio, he betakes himself to look over the list of those whom he desires to have on his books. Turning over the cards one by one, he obtains a comprehensive view of every effort that has been made to interest these people in his work. The mere fact of running over the cards brings to his mind incidents and local happenings. These will prompt him on the spot to write or dictate a personal letter to this or that person, who, already familiar with the circular letter he has put out, perhaps only needs this one touch of individual interest to clinch the good impression that may have been forming, and that may even then be ripening in their mind. He cannot obtain such a view of the prospective field in any other way. It would be nonsense for him to attempt to cull from the blue book or directory these names each time,

nor could he find them on his ledger, for the simple reason that they are not yet customers. He has laid out before him a comprehensive list of all the people whom he wishes to reach, and only those. He sees at a glance whatever result has followed his previous effort, and may apply the remedy in local cases where the responses have not been made apparent. Another great advantage of the system is that it is not confined to the large studio. A carefully selected list of only a few hundred names, followed up from time to time in this way will be productive of much greater good than the indiscriminate circularization of the whole community on spasmodic occasions without any means by which track may be kept of what has been done. I, therefore, firmly believe that the value of all publicity is dependent more upon its intelligent following up than upon the money spent in preparing and distributing it.

THE OLD AND NEW PHOTOGRAPHY.

[In view of the radical changes that have taken place in the manipulation of photographic processes during the past fifty years, the following very interesting article from *British Journal of Photography* is full of valuable suggestion. The average worker of the present day is almost wholly unfamiliar with the difficulties of old-time photography, and perhaps equally unacquainted with the reasons governing the permanency of many of the older processes of negative and paper printing. A careful reading of the notes that follow will suggest much to the thoughtful mind.—Editor W. P. M.]

"It is interesting in any art or science, and often instructive, to now and again refer back and see what was done in the long ago and compare it with what is being done at the present time. In nothing, perhaps, does this apply more than in photography, although it is but little over sixty years old. Only those of our older readers —and we are pleased to say there are many—who can hark back to the state of photography during the fifties and sixties and compare it with what now exists, can to the full realize the advantages the present-day workers, whether they be professional or amateur, possess over those of the earlier days of the art. Not only does this apply to processes and increased facilities for working them, but also to apparatus of every description. At the present time we obtain our plates ready for exposure in the camera instead of having to prepare them ourselves at the time they had to be used, whether in the studio or in the field. Now we buy our paper ready for the printing frames, instead of having to sensitize it ourselves, even if not to salt or albumenize it. At the present time, owing to the improvements in lenses, there is no fear of getting curved marginal lines in our pictures, and our apparatus generally is of the most portable kind and most convenient in use.

"It is not our present intention to dilate on the troubles the earlier workers encountered, or the inconveniences under which they, perforce, had to work, but the fact remains that good work was done in those days, and much of it would put to shame some that is being turned out at the present time, more particularly when it is considered that at the period alluded to there was no retouching to assist the portraitist. But we need not enlarge further on this topic, as our object in this article is to inquire whether the results in everyday work now are, both as regards negatives and prints, much if any superior, as regards stability, to those of the long ago, considering at the same time the better theoretical knowledge we now possess in this connection. Or, to put the question another way, are the results produced to-day as stable as those produced in the early days of the art; and if not, why not?

"The first negatives made were on paper —calotypes. The paper was prepared with iodide of silver, developed with gallic acid, and fixed with hyposulphite of soda. Hundreds of these negatives are now in existence which are as good as when they were at first taken, notwithstanding that they are sixty or more years old; so are many of the prints made from them by what is practically the same process. If

we take up an old family album containing portraits taken, say, during the carte-de-visite period, we shall find, no doubt, some of the prints, which, of course, are on albumen paper, in a more or less faded condition; but we shall also find very many that are in an excellent state of preservation, and some as good, or nearly so, as at first, notwithstanding that they are forty or so years old. If we go through a more modern album, containing prints made within the last decade or so we shall, as a rule, find much the same state of affairs as in the older collection—some have changed badly, while others have not. It must be understood here that we do not include platinotypes or carbon pictures, but refer solely to silver prints. Now, as the fading action is a progressive one, we can well speculate on the state the pictures in the modern album will be found in by the time they reach the age of those in the older collection. The interesting point for consideration is whether this earlier fading in the modern work is due to the processes employed or to the manipulations, for there is no question that at the present time we know more about the theoretical part of the subject than we ever did before, but are we turning that knowledge to the practical account we might do?

"From the early "fifties" till some thirty years later the collodion process was the only one used in practice for negatives, and the negatives then made show no signs of fading. In fact, we do not remember ever having seen a collodoin negative that has in the slightest degree faded or become spotty from contact with damp paper. This is more than can be said with regard to gelatine negatives. So far as one can see there is no reason why gelatine negatives cannot be made in every respect as stable as collodion ones, but the fact remains that a very large proportion of them have not proved themselves to be so, as most photographers are aware. But is that simply due to a want of care in their production? If it is, it does not redound to the credit of their producers.

"At the present time the bromide paper is the one solely used for enlargements when they are made by a silver process, but many of those which have been made but a few years—even months in some instances—are already showing signs of decay by passing into the "sere and yellow" stage, though many of the early ones—those made in the early days of the process—are as good as they were when they were first produced. This should show that it is not the process itself that is at fault, but the method of working it. In the early days of the art, and before the advent of bromide papers, all silver enlargements on paper were made on iodized paper by a method analogous to the old calotype process, and they have proved themselves to be exceedingly permanent, as have done the old calotype negatives.

"Seeing that so large a number of silver pictures—negatives and positives—show such early signs of deterioration, while so many of those produced several decades ago remain intact, it becomes important to inquire whether we have in processes, or in the manipulation of them, profited to the extent we should from our present knowledge of the theoretical part of the subject of which at one time the earlier workers knew but little about.

"Many who have only entered the ranks of the art since the introduction of gelatine photography have but a faint idea of the processes that were in vogue before that period, and the wide difference there is in the principle involved in their working. Take, for example, negatives. The light sensitive salt is quite different, the principle of development was different, and the fixing agent was also different. We, of course, are, for the moment, alluding to the wet collodion process.

"With the wet collodion process the sensitive salt is iodide of silver plus a very small proportion of the bromide. With gelatine plates it is bromide of silver plus (generally) a very small proportion of iodide. In the collodion process an iodide —say, of ammonium or cadmium, or both— is dissolved in the collodion. This, by immersion in a solution of nitrate of silver, is, by double decomposition, converted into iodide of silver in the film. The plate, when taken out of this bath, is exposed direct in the camera with the free nitrate of silver, both in the film and on its surface. The developer, instead of being alkaline, as with gelatine plates, is strongly acidified; and its action, after exposure, is to reduce

the free silver present to the metallic state, and deposit it where the light has acted.

"After the image is brought out by the acidified iron developer it is intensified with an acid pyrogallic solution to which more nitrate of silver has been added, the intensification being merely the deposition of more silver on the image. Hence we have in the finished negative the image consisting of metallic silver embedded in a quite inert material, as the collodion forms no compound with the silver. The fixing agent is also different from what is used for gelatine plates, cyanide of potassium being what is almost universally employed in the collodion process, hypo being but very rarely used. The cyanide of potassium and the cyanide of silver formed are very soluble salts, and have no affinity for collodion; consequently they are quickly removed from the exceedingly thin film with two or three minutes' washing under the tap. When finished, collodion negatives are always varnished—indeed, they cannot be printed from before without great risk of their being ruined by abrasion of the film.

"Let us now consider the gelatine process. Here the sensitive agent is the bromide, and not the iodide of silver. The bromide of silver is formed in the emulsion, and there is no free nitrate of silver in the film. The developer is an alkaline one, and its action is to reduce the silver in the bromide to the metallic state in proportion to the light's action. There is no deposition of silver from what may be termed outside sources, as in the case of the collodion process. The image is formed entirely of the silver reduced from the bromide. The fixing agent here is always hypo, and, by reason of the great thickness of the gelatine film, as compared with the collodion one, its action is much slower and also after fixation the negative requires a much longer washing to remove the last traces of the hyposulphite and the hypo silver salts than is the case with collodion. Again, by far the larger proportion of the gelatine negatives now produced are not varnished at all; consequently when they are dealt with under adverse conditions—such as being stored in a damp place, or printed from in contact with damp paper—they frequently suffer serious deterioration.

"Prior to the invention of the collodion process the negatives were on paper, or on albumenized plates. But with them the same principle obtained as in the collodion process. In the case of the calotype process, for example, the paper was prepared with an iodide, such as that of potassium, and dried. It was then sensitized with an acid solution of nitrate of silver, containing a reducing agent, gallic acid, and iodide of silver was formed in the paper. This was exposed wet, as with collodion. The action of the developer was to reduce the silver in the free nitrate to the metallic state in the parts acted upon by the light. In the waxed paper process, after the paper had been sensitized, the free nitrate was washed away, but it had to be restored for the development of the image.

"In the albumen process the conditions are similar to those obtaining in the wax-paper process. The albumen was iodized with a potassium or ammonium iodide, dried, and then sensitized in an acid bath of nitrate of silver, when the iodide of silver was formed by double decomposition. The free nitrate was then washed away and the plate dried. After exposure the image was developed with an acid developer containing nitrate of silver which was reduced and deposited in proportion to the light's action, as in the processes just referred to. The fixing agent in all these processes was hypo, and in the last named, by reason of the thinness of the film, it was easy of removal. But in the case of paper negatives it was different, and more care was necessary, and it was usually bestowed upon them. This was the method usually followed: When the negative was taken from the fixing-bath, it was carefully pressed between blotting-paper to remove as much as possible of the solution. It was then soaked in water and washed under the tap for a time, and again blotted off. These operations were repeated until it was judged that the paper was freed from the hypo. In this way the last traces of it were effectually removed in a comparatively short time. Calotype negatives, it should be mentioned, used to be waxed before they were printed from, and that was practically equivalent to varnishing them."

PHOTO-RETROGRESSION, OR THE DISAPPEARANCE OF THE LATENT PHOTOGRAPHIC IMAGE.*

BY DR. LEO BAEKELAND.

ONE of the many practical advantages of the gelatine dry plate over the older processes consists in the fact that development of the plate can be postponed to any convenient time after the exposure. Examples have been recorded where negatives were successfully developed a number of years after the plate had been exposed in the camera. On the other hand, the question has often been raised in how far results obtained thus are inferior to those which are produced on plates developed immediately after the exposure. Direct facts have been given indicating a gradual disappearance of the invisible photographic image. The study of this question requires more accurate methods than those ordinarily resorted to by the average photographer, and this may account for the reason why this question has brought out some quite contrary statements. The gradual disappearance of the latent photographic image seems to be a process exactly the reverse of the one which produces this image under the action of light. I would propose to designate this phenomenon under the name of photo-retrogression.

Very probably we have to deal here with what is called in chemistry a reversible reaction, similar to those occurring in all phenomena of dissociation and double decomposition, where, under the action of opposing energies which try to produce two different systems, a condition of equilibrium is reached. That such a condition of equilibrium may exist has been shown conclusively by the study of photo-decomposition of pure chloride of silver in sealed glass tubes, but an almost virgin field of study and research is still open for the physico-chemist who desires to determine the limits and factors of photo-dissociation of various chemical compounds. Such study should not be limited to silver salts, of which the susceptibility to the action of light is well known. Much more staple inorganic compounds may undergo profound changes, as I have been able to show when studying the photo-oxidation of hydrochloric acid. This reaction is so much the more remarkable because by same hydrochloric acid in presence of oxygen oxidizes under the influence of sunlight, whereas we know also that chlorine in watery solution evolves oxygen and forms hydrochloric acid. We are here in presence of a reversible reaction produced under the influence of light and analogous to what occurs in photo-retrogression:

$$2HCl + O \rightleftarrows H_2O + Cl_2$$

I shall not try to decide here what chemical reaction occurs in the production of the latent silver image nor of its photo-retrogression. I consider any decisive opinion on this subject as idle talk as long as we cannot dispose of more thorough and complete laboratory investigations than the meagre work which has been published on this subject.

Without going into further general theoretical speculations, we may state that photo-retrogression was known to exist long before the dry-plate was invented. In the daguerreotype process the image can only be retained in proper developable state during a few hours. For the wet collodion process a similar fact is known, although it might be ascribed here to the physical condition of the sensitive layer, which requires a certain degree of moisture. Photo-retrogression in gelatine dry-plates can best be observed in such cases where the time of exposure has been limited to the very minimum, as, for instance, in under-timed negatives. Even then it may be difficult to observe the same unless under some particular conditions. In all cases where more than enough exposure has been given, photo-retrogression becomes much less apparent, and this is, perhaps, the reason why

* A paper read by Dr. Baekeland before the Fifth International Congress of Applied Chemistry, in Berlin. Dr. Baekeland's long experience in photographic chemistry and the accuracy with which he conducts his investigations lend to his conclusions a weight that places them almost in the category of proved facts.—EDITOR W. P. M.

so many contradictory statements have been made on this subject. I have studied photo-retrogression on dry-plates, films, bromide papers, and chloride papers. For all my experiments I take a standard negative purposely selected so as to show delicate graduation with no high lights and no transparent parts. I also use a sensitometer scale, similar to what is used for ordinary sensitometer tests, and consisting mainly of a glass plate divided into numbered squares made up of different thicknesses of opaque pigment. As a source of light I use a normal candle, the same quality of candle being used in all my experiments. In order to minimize the errors of observation, the experiments have always been repeated at least four times. My way of proceeding consists in placing the strips of dry-plate, film, or paper in direct contact with the negative or sensitometer scale, and then expose same during a given time at a constant distance from the candle-light. All ordinary precautions are taken so that the experiment should only take place when the flame of the candle burns under normal conditions. In each series of experiments some of the dry-plates, films, or papers are developed immediately, the development being carried as far as possible, *i. e.*, until the image does not gain any further strength. The results thus obtained are numbered and stored away for future comparison. An equal number of the dry-plates, films, or papers exposed under the same conditions are stored away in the dark, undeveloped, but are treated with the same developer afterward at specified intervals. Proper precautions are taken while storing the tests so as to exclude the possibility of outside influences on any of the light-sensitive material. When developing any of these tests a developer of strictly the same composition and same temperature is taken, and development is carried on under exactly the same conditions, but in each case development is carried on as long as the image gains in strength or detail, regardless of beginning "fog." In each case I selected a developer which experience had indicated to be best adapted for each sensitive material. Some of the experiments were repeated, using different developers, but in each case the results were only compared with those obtained by identical developers.

I have observed, however, that whenever photo-retrogression was apparent the same would be shown by each one of the developers, so that the nature of the developers seems to play no rôle in this phenomenon. In the first experiments thus conducted I came soon to the conclusion that certain varieties of films and bromide papers, also some chloride papers, show photo-retrogression to a considerable extent, even after relatively short intervals, while other varieties, and especially dry-plates, do not show it so much. This is mainly due to some chemical differences in the emulsion, as will be explained further. In some varieties of bromide paper and films photo-retrogression was quite apparent even after so short a time as forty-eight hours. The image developed after this time was invariably weaker than the one obtained directly after exposure. At the end of a few days the results became much more decisive, and after two months, in some cases, only a faint image was all that the developers could bring out. Let me repeat here and insist on what I have stated before, that these results become apparent only in such cases where exposure has been insufficient, and where, consequently, the prints have been undertimed. In such cases only development can be carried on to its full limits, and after all the silver salts which have undergone the action of light have been reduced, the image will not gain any further strength, even if the developer is left in contact for a considerable time. The only effect which such prolonged development may then produce is a general gray "fog" which covers the whole image without strengthening same or changing the relative density of the different parts of the first developed image. In full-timed prints—and by these we designate such ones as have practically received a slight excess of exposure—this condition of affairs does not exist; by developing same we reach a phasis where development has to be stopped, not on account of fear of "fog," but because the shadows and half-tones will acquire too great a density, which would prove objectionable in a negative, and which, in our experiments, renders it impossible to distinguish slight differences in the results. All experienced photographers will rather give too much than too

little exposure to their negatives. This practice is very commendable in view of the fact that thereby the effect of photo-retrogression is avoided. However, there are many cases where full-timed exposures are not possible—for example, in instantaneous work, and there photo-retrogression may have serious drawbacks. It may become more objectionable still in some methods of automatic printing and developing which are carried out nowadays on a large scale by some industrial establishments. As the amount of material involved in one of these operations may represent thousands of dollars at a time, it is quite natural that in such cases photo-retrogression deserves special attention.

A few years ago, when automatic printing and development, or "photography by the mile," was first carried on in New York, it was brought to my notice that a large roll of bromide paper, about 500 metres long and 65 cm. wide, which had been printed automatically by artificial light, could not be developed to the proper strength, although the test strip, which had been printed under identical conditions, but developed immediately afterward, had given excellent results one week before, The timing device of the automatic printer, the steady quality of the light, the uniformity of sensitiveness over the full length of the paper, and the conditions of the developer, were all critically examined. At that time I had just started my investigation of the photo-retrogression, and I was able to trace to this phenomenon the difference in results. That this was really the cause of all the trouble was proven beyond doubt by some direct experiments which were made afterward. Mr. A. E. Johnstone, of New York, reported to me similar cases which have been observed lately during the development of strips of negative and positive films, same as are used nowadays for animated photographic exhibitions. For instance, a large roll of films exposed in Europe, and of which a test strip had been developed there so as to make sure that the exposure was correct, was shipped to New York for further development. On arrival there it was found that the pictures developed too weak, so as to make the results unsatisfactory. The same developer was used as in Europe, and great stress was put on the quality of the chemicals, but without avail. Finally, the undeveloped portion of the film was reshipped to Europe to the party who had developed the trial strip, but he could not obtain any better results. Another case was cited to me of an undeveloped film which was sent to New York from the Philippine Islands. This film had also been exposed in an apparatus for animated photographs, and by a very competent operator, who tested a portion of the strip for exposure and development. On arrival in New York the image could not be developed, and showed all signs of photo-retrogression. In this particular instance the film had been submitted for a relatively long time to a humid and warm climate, which includes conditions which are most favorable for producing photo-retrogression, as we will see further.

I have tried by direct experiment to determine what factors have an influence on photo-retrogression:

Temperature. Dry-plates, films, bromide paper, and chloride paper were exposed as indicated above. A certain number of the tests were developed immediately; a same number of them were enclosed in a bottle provided with a glass stopper and kept in a refrigerator at a temperature ranging from 1° C. to 4° C. An equal number of tests were kept during one week in a stoppered glass bottle in a box, of which the temperature was kept at 40° C. to 48° C. At the end of three days photo-retrogression was very apparent for the tests kept at a high temperature, whereas it was not noticeable even after two weeks for the tests which had been stored in the refrigerator.

Humidity. Same tests as above were repeated. Some were placed in a large earthenware jar provided with a tight cover. In the centre of the bottom of the jar was placed a large cylindric glass containing sulphuric acid 66° B., so as to keep a very dry atmosphere. Other tests were placed in a similar jar, but the glass of same, instead of sulphuric acid, contained cotton soaked with distilled water, so as to saturate with humidity the air of the jar. The two jars were left in a room where the temperature oscillated between 18° C. and 27° C. At the end of two weeks the tests of both

jars were developed. All showed photo-retrogression, but the tests in the humid jar showed same much more than the ones contained in the dry atmosphere.

Chrome Alum. In all the above experiments I had the opportunity to observe that some dry-plates which I used showed less photo-retrogression than some films, bromide papers, and chloride papers. Then, again, films and bromide and chloride papers of different makes showed results quite different with each brand. I soon found out that those papers which were most subject to photo-retrogression had either a slight acid reaction or contained noticeable amounts of chrome salts. In order to determine in how far the presence of chrome salts has an influence on this phenomenon I made a bromide emulsion, and, after dividing same in two portions, I added to one of these about 1 per cent. chrome alum of the amount of gelatine used in the emulsion. The other portion received no addition, and both emulsions were used to coat some test plates and papers. The tests were dried under the same conditions, and afterward exposed and developed at long intervals. Photo-retrogression was much more apparent with the tests containing chrome alum than with those without this salt.

Acidity. In the previous experiment I noticed that the test which contained chrome alum showed a slight acid reaction on litmus paper. In order to determine whether acidity or chrome alum has the greater influence on photo-retrogression, I repeated the experiment in the following way: To the whole of the emulsion I added the same amount of chrome alum. Then I divided the liquid into two portions. One of the portions was used to coat test plates just as it was; the other received an addition of some drops of diluted ammonia, just enough to produce a very slight alkaline reaction. An initial test showed little or no difference in the sensitiveness of both emulsions, but after a few weeks photo-retrogression was less apparent in the tests which were coated with the slightly alkaline reaction. I next compared a neutral emulsion containing chrome alum with the same emulsion containing no chrome alum, but enough citric acid so as to give it a distinct acid reaction. The acid emulsion without chrome alum produced more photo-retrogression than the neutral emulsion with chrome alum. In all these experiments the tests were carried on in the same way and kept under the same conditions for each set of experiments, but in certain cases development of all the tests of each set had to be postponed for a more or less longer period until such time was reached when the difference in the results was sufficiently apparent to enable me to draw conclusions. These experiments explain why certain brands of dry-plates, films, or papers show more photo-retrogression than others. This phenomenon must undoubtedly be attributed to chemical action, and the chemical conditions of the different emulsions determine the speed and intensity with which it occurs. It is a known fact that emulsions which are intended for films or paper receive almost always an abundant addition of chrome alum, so as to render the gelatine coating less soluble and to produce at the same time a more viscous liquid which is better adapted for certain coating machines. Dry-plates, on the other hand, require no such addition of chrome alum. Furthermore, if emulsions are made by the "boiling" process where the "ripening" is obtained by a prolonged application of heat, their final reaction will be neutral or very slightly acid, and the smallest amount of chrome alum may give them a distinct acid reaction. Emulsion "ripened" with the ammonia process will almost always be slightly alkaline, even after long washing, and the addition of a small amount of chrome alum will not necessarily give them an acid reaction. I should mention here that emulsions made with the ammonia process, but separated by a centrifugal machine, may produce, after reincorporation of the silver bromide with fresh gelatine, a neutral or slightly acid reaction which may become more apparent after the addition of chrome alum. Let me also call attention to the fact that these slightly acid or neutral emulsions give generally papers or dry-plates which have better keeping qualities and which are less liable to become "foggy" with age. It so happens that such emulsions are also those which are most liable to show photo-retrogression. In the above statements, whenever I referred to chloride papers I meant papers of the "velox class,"

coated with such emulsion which contains chloride of silver in the gelatine, but without any excess of nitrate of silver or any other soluble silver salt, and which are intended to produce images by alkaline development and not by printing-out method.

The facts mentioned here add new strength to the supposition that the latent photographic image is due to a chemical and not to physical condition. Many hypotheses, none of which has been sufficiently demonstrated, have been proposed to explain this subtle chemical reaction. Whether we try to explain the latent photographic image by the formation of free silver, subbromide and sub-chloride of silver, or, again by the existence of oxysub-bromides or oxysubchlorides, above-mentioned facts point out that photo-retrogression occurs by chemical action. This action is probably the reverse of what occurs in the formation of the latent image. Whether in this phenomenon oxygen directly or indirectly plays a rôle we cannot say yet, and further work in this direction may give us a better insight in this matter; but I would call your attention to the fact that a neutral or alkaline light-sensitive layer would be in better condition for absorbing free bromide or chlorine or oxygenated derivatives of same than if same had an acid reaction. As far as regards the influence of heat and moisture, same is sufficiently accepted as being of great importance in all chemical reactions; in this particular case we are not astonished to see again these two factors as being of very marked influence in photo-retrogression.

Conclusions. Photo-retrogression, or slow disappearance of the latent photographic image, takes place in glass plates, films, and paper, coated with gelatine silver bromide or gelatine silver chloride. Photo-retrogression is especially apparent in under-timed images, and much less noticeable in over-timed images. Photo-retrogression may, under special conditions, become apparent in dry-plates, films, or paper forty-eight hours after exposure, and may increase until the latent image has nearly dissapeared. Photo-retrogression occurs quicker at high than at low temperatures. Photo-retrogression occurs quicker in a humid than in a dry atmosphere. Photo-retrogression is less apparent in neutral or slightly alkaline sensitive layers than in such ones which have an acid reaction.

SOME NOTES ON HALATION.

BY T. THORNE BAKER.

In opening up a discussion on "Halation and its Prevention" at a photographic society recently, a good deal of preparation was involved in order to classify all that could be said upon the matter in some sort of order, and it seemed that an interesting and useful article could be compiled from all that was brought up. I have attempted to sum up in the following short article the chief points of interest, as they should prove a useful source of reference.

Halation, to begin with, is due to two chief causes. If a brilliantly lighted object be photographed, some of the more luminous rays form sources of irradiating light at the points where they meet the film; and this species of the evil may be described as dispersive halation. The other, and more common variety, is due to reflection of light from the front and back surfaces of the glass which supports the film.

The explanation which most easily accounts for dispersive halation is that the bright ray of light that is incident upon the film is reflected from the silver-gelatino-bromide granule on which it falls, and so the light becomes dispersed by various reflections from the surrounding granules. The remedies for such halation are few and inefficacious. The dry plates used for snap-shot and portrait work will, if examined in daylight, betray the evidence of the presence of silver iodide in the film by their yellowish color. It has been stated that an increase in the proportion of iodide will prevent the dispersion of light; but it can only make the film more opaque and be of little practical value. The suggestion was made at the meeting above referred to of using a film rendered more opaque by having a greater proportion of silver salts in the film to the gelatine; but this is a method to which I fear the manufacturers would raise serious objections.

This species of halation is almost insignificant, however, compared with that caused by light reflected from the back of the glass, and, therefore, we shall devote our attention to reflective halation and its remedy. After a ray of light has passed through the film it can be reflected back at the surface, which acts to a small extent like a looking-glass. A normal ray would, of course, pass straight through the glass, but, as is well known, the majority of rays which strike the plate are divergent from the lens or some point near it. The light which is reflected from the glass in contact with the film is not of much consequence, except in the case of a very brilliant image, where it may cause a spreading of the edge of the object, and thus in the positive a bright object would have an indistinct outline. But, where a ray of light traverses the glass at an angle with the normal and is reflected back—of course at an equal angle—considerable spreading may result.

It is, therefore, necessary to have in optical contact with the back of the glass some absorbent medium, which will destroy the light.

Now, a ray of light meeting the glass at an angle is refracted or bent out of its course. It would similarly be refracted in passing through an opaque substance, even though its path is not traceable by visible means. But for every refracted ray there is a reflected ray; a ray passing through a piece of glass is not all refracted, but partially reflected from the surface. Therefore, it is important that the glass and the backing, or absorbent medium, be both of the same refractive index, as nearly as possible, otherwise some light will be reflected from the back of the glass plate, despite its backing. This may easily be seen by coating portions of one side of a prism with different backings. On examining the light incident on one face of the prism by looking through the other unbacked face, it will at once be evident which portion of the backed part reflects the most light, or "looks most like a looking-glass."

The refractive index of an opaque substance can be obtained by means of the polariscope; but this is an instrument hardly likely to be in the hands of a photographer. It must be sufficient, therefore, to make use of the best backing media which are placed at our disposal by those who have had opportunity to test them optically.

A few passing remarks should be made with regard to the backing necessary for an orthochromatic plate. To begin with, notwithstanding the care which may be exercised with regard to similarity of refractive indices and so forth, it has been impossible to produce a backing which does not reflect some small amount of light, except, perhaps, in the case of a black medium. A red backing will reflect some red light upon the back surface of the film, a brown backing will reflect red and yellow, and so on. Hence, when a plate is color-sensitive, it is essential to employ a black backing. The necessity for this will be at once apparent when making exposures in a spectroscope camera to ascertain the relative sensibility of a plate to different colors. Quite false results will be given more often than not if a colored backing be used, as the color corresponding to it in the spectrum, being enhanced by reflective halation, will appear too intense.

An excellent method of backing is to use a sheet of adhesive paper, which may be squeegeed to the back of the plate, and peeled off after exposure, before development. To prepare the adhesive paper it may be coated with a mixture (such as is given in the *British Journal Almanac*) as follows:

Gelatine . . .	1 part.
Water . . .	2 parts.
Glycerine . . .	1 part.
Indian Ink . .	A sufficient quantity.

A backing agent, known commercially as Rotlack-Bayer, or Bayer's Red Varnish, was referred to at the meeting in question as being a convenient preparation which could be applied to the back of the plate and removed after exposure by immersing the plate in water. The whole of the application comes off like a skin, and the plate may then be developed.

It is interesting to note that corroboration was found of the fact that backing detracts slightly from the sensitiveness of a plate. In consideration of this fact slightly longer exposure than the calculated time will be advantageous, especially in interior work, where it is difficult to record the detail in the shadows.—*The Photographic News.*

NEWS AND NOTES.

The Capital Camera Club, of Washington, D. C., recently held a very successful exhibition of pictorial photographs arranged by the Photo Secession, of New York, at the Corcoran Gallery of Art. About 160 examples were presented, comprising selected works by members of the Secession. The exhibition was numerously attended and was described by the local papers as "a revelation of the artistic possibilities of the camera."

We regret to learn that the *Photographic Art Journal*, of Leicester, England, is to be discontinued at the end of the present (third) volume. The P. A. J. was devoted to the pictorial side of photography, its illustrations showing careful selection and reproduction, many of them being reproduced in colors. In its first volume the magazine gave promise of much usefulness.

A new edition of Verfasser's *Half-tone Process* is announced by Iliffe & Sons, London. The work has been rewritten and greatly enlarged by the addition of new matter bringing the methods described into harmony with present-day methods.

One of the most valuable features of the centenary edition of Emerson's works now being published by Houghton, Mifflin & Co. is the several portraits of Mr. Emerson, which are now for the first time reproduced with absolute fidelity to the daguerreotypes and photographs. A comparison of these with previous engravings from the same originals reveals the immeasurably greater accuracy of the newer method of engraving over the wood-cut or steel plate, which was necessarily an interpretation, and therefore liable to serious deviations from the truth. The photogravures in the centenary edition include reproductions of a daguerreotype of Emerson taken in England in 1847, and now in the possession of the Carlyle family; the two fine photographs by Hawes in 1854 (one entirely new to the public); a superb daguerreotype by Whipple in 1859, which has never been engraved; and the photograph taken by Foss in 1874, which is the best portrait of the poet and philosopher in his declining years.

A 2 or 3 per cent. solution of persulphate of ammonia, thickened with a little glycerine or gum solution, makes a convenient and efficient reducer for local reduction.

Die Bildins-Photographie is a new work on portrait photography, by Fritz Loescher, of Berlin, published by Gustav Schmidt. It deals with portraiture from the historical and theoretical viewpoints and is well illustrated. The text, of course, is in German.

A special portrait double weight variety of *Velox* has just been placed on the market and will doubtless be welcomed by photographers who seek a heavy paper of this class for portfolio portraits.

Portraiture by Photography is the title of a tastefully printed souvenir issued by Mr. J. B. Schriever, Scranton, Pa., as an advertisement of his studio. The booklet is printed on paper resembling canvas in its texture and is illustrated with half-tone reproductions of sepia-tone portraits—a speciality of this studio. The text and arrangement of this dainty souvenir are the work of Morris Williams, the advertisement expert in charge of the publicity department of the American School of Art and Photography at Scranton, of which institution Mr. Schriever is the president.

Doctor Heincke, of Leipsic, has proved by experiments with animals that systematic exposure to x-rays, already known to be harmful to the skin, is also very damaging to the internal organs, especially the spleen and brain, resulting in death after emaciation, fear, languor and prostration.

Learn Pictorial Photography is the persuasive headline of a brochure issued by the School of Pictorial Photography at Cazenovia, N. Y., under the management of C. P. and A. G. Marshall. Copies can be obtained on request from the publishers.

By Hollinger, New York

By Hollinger, New York

By Core, Cincinnati

By Fred J. Feldman, El Paso, Tex.

By Fred J. Feldman, El Paso, Tex.

By Hollinger, New York

By J. Edward Rösch, St. Louis

By J. Edward Rösch, St. Louis

PROFESSIONAL PORTRAITURE.

BY C. W. HEARN.

VII.—THE ÆSTHETIC SENSE IN LINES.

(Continued from page 127.)

THE best lines in the head and neck of a lady sitter are largely determined by intuition on the part of the operator. They must be found by turning the head in different positions and studying the effect in each. These lines, when correct, appeal to the æsthetic sense of the operator, and greatly influence the dignity of pose and sweetness of expression. It is sometimes advisable to be satisfied with the simpler Hogarth line of beauty rather than to strive for the "S" line if in so doing a discordant note in the perfect representation of the character of the sitter be struck.

The bending of the head, which is sometimes necessary to complete the extension of the "S" line, is frequently disastrous. If persisted in, even to a slight degree, without proper discrimination, it may change the portrait of a lady of refinement into the picture of a bold, coarse woman. Is it not true that in such a case as this the arrangement of line in the simple turn of the head emphasizes qualities that are often overlooked? Do not of necessity conclude, if a critical subject says her pictures do not resemble her, that she is either of necessity a crank or wrong in her belief. It does not always follow that because the lens will photograph the wart upon my lady's nose so faithfully, that these pictures showing this characteristic must of necessity look like her. You may simply have used wrong lines in the pose of the head, with the result that the portrait reflects her features in a manner unfamiliar either to herself or friends in daily life. In addition to the face, the lines which form the hands may indicate coarseness, aggressiveness, daintiness, or other characteristics. As before said, "Art is beauty in some form or other, and the aim of art is to find and show this beauty." The hands have an important mission to perform in portraiture. The manner in which the fingers are interlaced, or the drapery held, etc., has much to do with the expression of beauty and character. It frequently will be found that the hands should show but slightly, if at all, particularly if not well formed and attractive. If shown, they should be in keeping with the personality of the subject. If efforts are made to show these characteristics in the portraits of the dainty, well-bred lady, do not fail to give the same attention to other characteristics of the figure, no matter how minor they may be.

Great importance attaches to the special training of the finishing schools for young women. In these schools are taught the principles of carriage and the art of walking, standing, and sitting with grace and ease. These matters are considered important in the school of society and should be recognized in the studio. Whenever evidences of this special training are apparent, it will usually be found advisable in photographing the sitter to allow her to pose herself. Such a pose will probably be more characteristic than the result of your attempt at arrangement. In cases where through diffidence or other reasons the sitter is unable to take a position both characteristic and artistic, a few simple suggestions may often accomplish the end desired.

I would add, in passing, that this method is the one most generally satisfactory in all posing, whether of men, women, or children, whenever it is possible to employ it. Its advantages are most important, however, in the posing of the head or bust.

All arrangement of the dress and drapery that can be properly left to the photographer should be attended to by him, particularly in the case of lady sitters. He should endeavor to accomplish results without ever touching the face of his sitter, and seldom the head. When necessary, however, the touch should be upon the top or back of the head, and never in front of the ears. Your sitter will mentally, at least, thank you for this delicate attention. We are not barbers, neither should we give our patrons the impression that we are akin to them

In the general arrangement, all lines (except under certain well-understood con-

ditions) should aim to give grace. This rule applies even to those lines that are mainly employed for the purpose of balance. By this we do not mean that curved lines only should be used. There is no greater aid to the expression of force and elegance in curved lines than the judicious employment of straight lines, by which their monotony is broken. Straight lines are, therefore, often very properly used in the treatment of backgrounds and lower parts of the picture.

ANGULAR LINES.

Occasion may arise when curved lines, in connection with which are associated grace, beauty, delicacy, daintiness, etc., could be dispensed with, and abrupt, angular, and even proportionately strong "Z" lines substituted. The natural tendencies apparent in the make-up of individual sitters readily suggest the character of lines suitable to be employed. Care should be exercised in the employment of these lines that they be not too forceful. They must not dominate the sentiment, but support it. The student will find ample and excellent material in any good reproductions of the successful paintings of any age in art, for the study of lines and the power they possess in the interpretation of character.

STRAIGHT LINES.

As a general rule, or so it seems to the writer, straight lines, when employed in a composition, may, like salt upon partly seasoned food, be used sparingly. This applies to intensity of tone and size of line as well as number. When they appear in accessories, as, for instance, in a table or chair, to form a decided angle in strong tone effect, they may be modified by changing the position of the accessory or, as in the case of the table, by breaking the long and strong line of the edge by projecting something like a book over it, thus causing smaller counter-lines in other directions. It may also be assisted and always should be, if pictorial effects are studied, by a suitable background and subordination. Straight lines possess great strength of attraction, necessitating much more attention than the same tone qualities in curved ones.

ISOLATION OF LINES.

The outside line of the figure, to cite a single instance, should always receive special treatment, that it may be symmetrical and merge or melt into the ground to some extent. This may be done by lighting the too prominent outline of the figure in a lower key, and by arranging the background at that part so that it too will be approximately of the same tone as that of the figure. This applies equally to the standing figure and the bust portrait. Lines should diminish in their power of attraction as they recede from the central point of interest, whether they are curved or straight.

REPETITION OF LINES.

Avoid undue repetition of lines of equal size and weight when in close proximity to each other. If not large nor too prominent, which may be the case if in a low key, they are quite harmless. If there be a multiplicity of them, however, and it be impracticable to change the arrangement of the composition, which is otherwise good, or even pleasing, do not mind them at this stage, but stick to the greater thing, and carry your scheme through. In one of Sir Joshua Reynolds' lectures to his students he makes a point which is quite applicable in this case. Its sense is to the effect that it is much better to be an inferior artist of the *grand style*, than a better grade-artist of an inferior style, and that too much attention to petty and unimportant details with a loss of grandeur and style in the conception itself is a thing that should be guarded against. It is well at this time to recall this sentiment, lest we, in our efforts to apply art principles to our productions, stultify ourselves by undue attention to the lesser things. If we try to produce balance, rhythm, and harmony, their importance being in the order given, and keep this idea ever before us, an occasional lapse in less important principles will not prevent our work from doing us great credit. Worthy ambition and high ideals are much to be desired, and the goal which Reynolds advises his students to strive for is applicable to us as photographers.

In the instance above cited referring to the multiplicity of unimportant lines, if the advice to disregard them for the time being be adopted, their subsequent treatment may be effected and any undue importance modified by etching or rubbing out the most noticeable ones, thus relevating that part of the negative to the character of a mass or spot of proper tone, so that it will not in turn possess undue attraction. Of course, the changing of the character of this part of the negative and its relation to the whole has to be considered, but the composition is frequently improved in an æsthetic sense by this loss of detail and the gain of mystery and simplicity. If these lines are large and of equal size, they are likely to be very damaging and should receive careful attention. They should be subordinated in a mass of shadow to come at this place, or merged into some adjacent object, such as foreground, background or accessory of about the same tone. The composition is also improved by diverging balancing lines. The employment of some or all of these methods will be found to answer the purpose. The darker the lines, the more do they attract attention, especially if aided by contrasts, the effect being more noticeable as they increase in size. It is possible in arrangement to avoid this repetition in size of pronounced lines, and the difficulty of removing them is best obviated by care in arranging the composition. Unequal spaces between lines, unequal sizes of lines, and a breaking of their exact regularity in direction, does away with any damage that could result from their use. This applies whether they are straight or curved.

PARALLEL LINES.

There seems to be a general understanding among photographers that parallel lines should always be avoided. Perhaps if slavishly used, this may be the case. There are occasions, however, when lines that appear parallel really do no particular harm in the picture. This, like many other things, depends upon the prominence they possess. If pronounced, they are hurtful and should be differently arranged. It is a mistake to think that lines that closely approach the parallel may never appear. They may often be used to advantage. A good thing to guide you is your sense of feeling which you are constantly training. If the lines distress you, change them till they no longer annoy you.

A lady's hands may be simply clasped in her lap, very nearly approaching the parallel, yet they certainly add repose, and are much in keeping with many types of the feminine face. If they do not jar upon your sensibilities and the picture sense of quietude and simplicity is well interpreted by their presence, do not let this use of them prevent you from making the picture.

PROMINENCE OF LINES IN THE SILHOUETTE.

Without entering into a discussion at this time as to the "Silhouette" itself, I would mention that the greatest objection that has been raised by artists and critics to this picture is in the sharp and hard outlines formed against the background, more noticeable as the contrast is increased. Principles that are applicable will come under discussion later in these papers.

These lines as an aid to "concentration of interest" are more likely to act inversely and by their prominence draw attention from the pleasing things of the face or head to outlines which are often unpleasant. This is noticeably the case at times in the profiles of ladies, in the line from the chin down the neck and along the shoulder. The remedy is obvious. Grade the shade of the ground and light the face so that the excessive contrast is not so apparent. It will frequently be found advisable to change the scheme or usual method of lighting to obtain the desired result, and to employ the broad light in its full sense, which will remove the difficulty. Posing the subject facing the light, the camera, itself, being backed up to the side light, permits the attainment of results not possible under other conditions. By slightly turning the figure, moving the camera up or down and alongside the side light, and placing the subject nearer or farther away from the light, will enable the photographer to obtain any effect of brilliancy, roundness, tone and color values, although at first thought only flatness would result. The lighting is very subtle and picturesque.

In connection with the above, several tints of graded grounds on curtain rollers, that can be raised or lowered, will work in well, and all undue prominence of these lines in the silhouette may be remedied.

RHYTHM AND MOVEMENT OF LINES.

Rhythm of direction in the general tendency of important lines leading to or adjacent to the principal parts of the picture, and inclining as a whole toward the centre of interest in the composition, is important. As rhythm is the graceful carrying out of some form of motion, it is apparent that good rhythm will increase movement, and movement gives life to what may otherwise be an inert mass of unattractive lines. As interest is thus gained by this movement, only attainable by rhythm, it at once becomes apparent that the beauty of a portrait is much enhanced by this treatment, and the principle is of great value, to be understood and striven for by us all. Breach of rhythm is caused by lines running contrary to a general direction, which are impossible of union, and the breach becomes greater as the number and size of these lines increase.

One of the first things the student in photography hears in commencing "posing" is the much quoted phrase, "If you have a straight line here, have another one next, going the other way, to balance it," thus giving the impression that this must be slavishly followed. If this erroneous advice were literally followed, we would have most peculiar compositions, in fact grotesque, and rhythm and harmony would become impossibilities.

The extent and frequency of counter-lines will be mentioned under "Balance," as relating to that principle in art. It must not be supposed, however, that all lines should run in exactly similar directions in the groups mentioned above, where they appear hurtful to the composition.

Among other things, monotonous effects have to be guarded against. Better composition is obtained if the general tendency is in this direction, and where slightly diverging lines run in and join other lines let their union be softened and practically lost, rather felt as joining than positively indicated.

The reader will recall many of the pictures of flower pieces where this theory is carried out, and he may view the decorative school of Japanese art with much profit in this sense. In the practice of photography avoid the use of small stops in lenses and light the subject either away from the strongest light, or screened by curtains, with a view to accomplishing this result while striving for color and tone values, atmosphere, and the like. In the arrangement these lines may receive attention and be made to melt in together and not brought into sharp outline against each other. Furthermore, recourse may be had to the various methods photographers now employ to remedy defects in the negative or print. A remedy for this and other difficulties is also possible by printing under transparent films imposed between the negative and paper. Vertical lines add dignity, horizontal lines repose, diagonal and opposing lines action.

(To be continued.)

PORTRAITURE OLD AND NEW.

BY K. M. STUDLEY.

THE remarkable loan exhibition of portraits held in the city of New York in the latter part of 1903 formed the subject of a leading article in the *New York Evening Post* of December 14th, which is full of suggestion to the thinking photographer of the present day. While the portraits exhibited in the above-named collection are all oil paintings, it may justly be held that many of the criticisms and suggestions affecting them hold a strong parallel in many ways to the work of the modern photographer. It must, of course, be said for photography that no comparison may be made to the work of any but a comparatively recent period, but it may safely be claimed that with even the short lapse of time that has transpired since the beginning of our art,

comparisons may be drawn between the work of the old daguerreotypist, for instance, and that of the present day that contains no small element of helpfulness if properly analyzed. In the exhibition of paintings above alluded to, the subjects comprised both the old and the new school of portraiture and were representative pictures of persons occupying positions of importance in the land; statesmen, generals, captains of industry, authors and ladies of fashion, hung side by side with eminences of high degree and forgotten royalties. The contrast, then, was both "social and artistic;" but it was "hardly in our favor," that is in favor of the newer school. "Among the old pictures, on the contrary, there was singular harmony; those bitter foes, David and Delacroix—each represented by a single fine example—did not seem so incompatible as, say, Mr. Frank D. Millet and Mr. J. Alden Weir. Such comparisons and contrasts lead to no other conclusion than that, despite the existence of fine modern portraits, modern portraiture does not exist. I quote as follows:

"We need not labor the point. One has only to recall the Goupil Biographies into which have been gathered all the likenesses of certain Tudor and Stuart monarchs and their associates. The material suffices for a moral as well as physical presentment of each court, and that was true of courts till the fall of Napoleon. Of Queen Victoria, on the contrary, we have no adequate pictorial record, and of her poets, generals, and statesmen, only for such as, fortunately, sat to the painter Watts. And the same is true of every modern European court. In America, too, we may readily imagine Washington and Jefferson and their official circle; posterity will hardly have as good evidence of the period of Theodore Roosevelt. Naturally it might be argued that there is something artificial about the consistency of the old pictures; that the artists imposed certain decorative formulas upon all sitters, and consequently that the diversity of modern portraiture is more in accordance with natural appearances. All this may be true, and yet the fact remains, that the old English, Venetian, Dutch, Flemish or French formula renders the character of these people more successfully than our vaunted naturalism.

"It was inevitable, perhaps, that with the great democratic movements of 1848, which virtually mark the end of the historic tradition in portraiture, the art itself should become confused. Formerly it had been aristocratic; then it had to adapt itself to all sorts and conditions of men. Distinction is hardly to be expected of the painter when it is lacking in the sitter; and, on the other hand, an art which is trained to note the trails of aristocracy will almost inevitably sink to flattery or caricature when it is required to trace the lineaments of people who are their own ancestors. But a healthy art should readily adapt itself to these new conditions, welcoming such broadening of its field. Why modern art has been unequal to the transition may be variously explained.

"First of all, the best talent of recent times has been averse from portrait painting. Landscapes and mural decoration have been the favored fields. The rapid development of technique in these branches has undoubtedly reacted unfavorably upon the portrait painter's art. For succeeding waves of romanticism, naturalism, impressionism, intimism obliterated the sound tradition inherited from the eighteenth century and introduced a dozen complexities with which portraiture should probably not attempt to deal. The Venetians were not unobservant of the play of sunlight and shadow, but Tintoretto, Veronese and Tiepolo himself maintained the sober decorative convention for portrait painting. The Florentines had their notions of linear composition, but from Botticelli to Bronzino they excepted portraiture from their more daring experiments. Our painters, on the contrary—the most able of them particularly—have used their sitters as *corpora vilia* for all manner of innovation. The disquieting effect of most of the modern portraits is that they are the occasion of gratuitous display of knowledge of outdoor illumination or of unusual effects of diffused lights. A talented woman whose chosen subject is nurses and babies has posed them all in a hard light which almost annuls real beauty of form and texture. Better this, of course, than the base tradition which academies here and abroad still promote unceasingly; but better than either a return to the simpler methods

of the great periods of portraiture. Among the methods of Holbein, Titian, Hals, Velasquez, all portraiture is comprised.

"We need a style for the times. Hints of what that style will be are not wanting. But the attainment of a genuine tradition will necessitate a self-denying ordinance. Our painters when they set themselves to depicting character must forget much that is chattered about the studios. Their task is to create about their sitter a world—a frankly conventional world of paint—in which that sitter's personality shall dominate all else. This cannot be done by the cheap formulas of the schools, nor by lugging in the latest thing in pointillisme. The lesson of the portrait show is that, if modern portraiture hardly exists, it is eminently worth creating. The show at least should have suggested to many artists of great if ill-controlled talent the expediency of relearning their trade in the light of the classic examples."

If this fair and able editorial has a message to the portrait painter it should also carry one to the portrait photographer, a message of simplicity, personality, individuality, a dominating spirit of the man or woman who sits before the camera, a record of whose form and features it is the privilege of the photographer to make. If the message that is needed in the average studio to-day might be summed up in a single word, that word the writer believes would be "simplicity." It is, of course, a conceded fact that the photographic artist is bound in by limitations that do not affect his brother of the brush or pencil. He may not idealize, excepting so far as he may infuse into his sitter the reflex action by which the sitter shall reflect the thought and motive that inspires the artist of the camera and unconsciously add to the mechanical portrait that spirit of ideality that can only come under peculiar and rare conditions. That this is possible, to a large degree, we believe has been demonstrated in the work of such men as Histed, Strauss, Macdonald, Stein and others in the treatment of adult portraiture, and perhaps even to a more marked extent by Core and others who have devoted their talents to the portraiture of children.

In the words above quoted, photographic portraiture also needs "a style for the times," and that style is one which should be possible to a greater degree than has ever yet been known, even in the work of our best modern portraitists. It should be simple, dignified, and gracefully strong in the interpretation of masculinity, and dainty in its treatment of the other sex. Photography is more fortunate than painting, if the statement above quoted is true, that "the best talent of recent times has been averse from portraiture," for in photography the leading aim is portraiture, and every effort of the scenic artist and manufacturer of studio accessories has been devoted to that end. The thought is forced home by the reading of such comment as that above, that a field exists for honest photographic portraiture that portrays, and the belief can hardly fail to be created that a larger and broader, if not better, class of photographic portraits will arise in the land.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

THE following official notice from the Secretary of the P. A. of A. should be read with the greatest care by all photographers intending to visit St. Louis during the coming World's Fair. In it will be found a plain statement of the conditions under which accommodations may be had at the hotel provided for photographers, and it will be readily seen that only those members of the P. A. of A. whose dues are paid in advance for the current year will be eligible to the advantages which the committee have secured during the convention week. If, after reading this letter of the secretary, there are still those who do not understand the conditions under which they may be accommodated at the Forest Park University Hotel, they are advised, first of all, to remit their dues to the treasurer, and next to write to Mr. Grafton for further particulars.—EDITOR W. P. M.

OFFICIAL NOTICE NO. 2.

To the Photographic Fraternity:

It has reached the ears of several members of the Executive Board of the Photographers' Association of America that a report is going the rounds to the effect that there is to be no National Convention this year, owing to its being World's Fair Year. Your Executive Board, having planned for a convention that will far surpass any ever given, I wish, as the secretary of said board, to emphatically deny such rumors.

Your Executive Board never knew such a word as "Fail;" in fact, we had to ask a back-number photographer how to spell the word. To the end that our coming National Convention may surpass anything ever given, we have secured the Forest Park University Hotel (which is located within a stone's throw of the World's Fair Grounds) to take care of our photographic friends, and in which to hold our meetings.

It is the intention of the board that only morning sessions be held, and the afternoons be given to seeing the Fair and visiting the art halls, where we will have capable artists to deliver lectures on the many fine works of art therein. This alone will be a very instructive feature of the convention, and everyone may profit immensely by the instruction given.

The greatest National Convention ever held will convene in St. Louis during the first week in October, from the 3d to the 8th, inclusive.

This will be just before your holiday work begins, and you will have every opportunity to gain new ideas. The Lord help the fellow that does not try to help himself.

It will be painful to you to have to admit to your artistic patrons that you did not see the works of art at the grandest exhibition of that nature ever held in this country; but by taking in the fair you can also take in the greatest convention, and thereby kill the two proverbial birds.

Rates have been secured at the Forest Park University Hotel which will be much lower than any rate secured elsewhere, but this rate is for members of the Association only.

To secure these rates, as well as to secure accommodations in advance for convention week, it will be necessary that you be furnished with a certified receipt from the treasurer, Mr. Frank R. Barrows, 1873 Dorchester Avenue, Boston, Mass., showing that you are a member in good standing. Upon receipt of same you can write to Mr. J. J. Grafton, Lessee and Manager, care of Forest Park University Hotel, stating when you want to come and that you are a member of the Photographers' Association of America. He will then set aside as many rooms as you will want for that week, and same will be at your disposal during the convention week. *Under no other conditions will you be able to secure these accommodations.*

Bear in mind that the Executive Board have promised you the grandest and best convention ever held, and to redeem that promise every member of said board is working night and day to see that it is fulfilled.

Our *Official Journal* will be a thing of beauty and a joy forever, and woe to the one who fails to receive a copy. It will be yours for the asking, if you are in good standing.

There are many things that I would like to say to you this trip, but lack of time and space forbid. However, it is my intention to visit many of the State Conventions this year, and I will tell you more when I meet you.

With very best regards, I beg to remain,
Cordially and fraternally yours,

GEORGE G. HOLLOWAY,
Secretary P. A. of A., Terre Haute, Ind.

To Clean Bottles. It may be assumed that no bottle is so badly stained that it cannot be cleaned and made useful. One of the first things to remember, however, is that those bottles that have contained oily substances can only be successfully treated by using strong alkalies, such as washing soda, caustic soda, or caustic potash. Turpentine and benzine may also be used in many cases with good effect. Stains by pyro, metol, etc., can best be cleaned by the use of nitric or nitrohydrochloric acid. A combination of nitric and sulphuric acid may also be employed in stubborn cases.

ITEMS OF INTEREST.

Photography by Telegraph. A report comes from Berlin of an automatic printing telegraph instrument in which the letters to be telegraphed are perforated in a paper strip and fed into the transmitter. A rapidly rotating drum working synchronously with another at the receiving end, to which is attached another strip with the letters stencilled out, passes the second strip before an electric spark which is ignited at the instant the required letter is shown in the stencilled strip. The spark records the stencilled letter upon a strip of bromide paper which is automatically passed between sponges containing the solution and fixing bath. This apparatus is the work of Herr W. von Siemens, and is said to have a capacity of recording 2000 letters per minute.

Photographic Chart of the Heavens. It is now nearly fifteen years since the systematic charting of the heavens was begun by action of the International Congress at Paris. Since this time most of the prominent observatories of the world have been engaged in a systematic plan by which eventually every portion of the heavens will come within the scope of the photographic plate attached to the telescope. When this work was undertaken it was believed that it might be completed in about twelve years. There still remains a considerable portion uncompleted, but the work is going on with quiet energy and within a few years will probably be finished. The greatest care is being taken in the development of these star negatives in order that they may show, in the years to come, the records that have been secured upon them. It will be remembered that a good deal of doubt was at one time expressed regarding the permanency of these negatives, but it is now believed that most of them are in a good state of preservation and that the permanency of those made in the later years may be depended upon.

Survival of the Fittest. An excellent application of this old-time theory is made by one of our amateur contemporaries. The parallel is made by referring to the often-heard statement that only two perfect negatives can be looked for out of a dozen plates. The writer goes on to show that two out of twelve is a capital average, and one that ought to satisfy even the most grasping worker. If out of every dozen negatives two may be had on an average that scale high in technical, artistic, and chemical qualities, the remaining ten may easily be discarded and the future of the studio exploited upon the qualities of those retained. The cost of plates is not to be compared with the cost of labor, skill, experience, and other requirements in the making of a perfect negative.

To Clean Brass. The brass parts of photographic or scientific apparatus may be cleaned and brightened up in cases where they have become more or less tarnished, by applying a mixture of sandstone and turpentine compounded to the consistency of a paste, allowing it to remain for a few moments and then polished with a soft cloth. In cases of stains that will not yield to this treatment a diluted solution of oxalic acid, 1 : 20, applied with a strip of flannel and polished with a soft cloth may be substituted for the above.

The Curling of A. L. D. Papers. The method successfully employed by Mr. Milton Waide to prevent the curling of prints made on artificial light developing papers is as folllows :

Print is taken out of wash-water, and laid face down on muslin which has been placed over a blotter.

When dry enough so that the film will not adhere and yet damp enough to be limp, the print is carefully rolled, film side out, upon a round roller (cut from a roller usually accompanying backgrounds), a small rubber band is placed around each end and the roller removed, leaving the print to become *bone dry*, which, while it is so doing, allows the pores of the emulsion to stretch. If *later* it is necessary, the print is rolled the *other way* to make it lie perfectly flat.

Absolutely no difficulty will be experienced with flattening prints if this method is adopted.

THE PREPARATION OF THE ORIGINAL IN RELATION TO FINE ETCHING.

BY FRANK W. BROOKMAN.

As an old practical worker I well remember the disquietude occasioned in the mind of the fine etcher some twelve years since on the advent of the cross-lined screen, which, in the opinion of the alarmists of the time, was going to revolutionize the methods of the half-tone process. Not the least important of the sweeping reforms promised by its introduction was the partial, if not total, elimination of any hand work on the block. The fact that these prophecies were not amply fulfilled proved a source of much comfort to an important section of the workers, against whom, from the birth of this most valuable of all mechanical processes, there has been waging a determined though silent war.

As a matter of history, it may not be out of place to mention here that at about this period the lot of the fine etcher could hardly be considered as a particularly happy one.

Taught from the very first to regard himself and his craft as a necessary evil whose extinction was but a question of a little time, he lived on from day to day in dread of waking one morning to find, like Banquo's ghost, his occupation gone. With this end in view, the aid of sundry professors from southern and other climes was from time to time invoked to remove by the magic virtues of their blue and red prints (and other jealously guarded and worthless trade secrets) this malignant growth which threatened to overwhelm an otherwise beautiful and purely mechanical process. Although one or other of these touring stars would occasionally be secured at enormous expense, the engagement seldom lasted longer than a fortnight or three weeks, at the end of which time no serious changes had taken place except in the exchequer.

That the cross-lined screen brought possibilities of greater perfection than has since been maintained in general practice is certain.

This shortage, however, must not be attributed to any fault in the screen, but to an innate failing in human nature, for it seems to me that, in common with all new inventions, the part most appreciated by the average worker is not that which promises a high degree of excellence, so much as those features of it which offer the greatest facilities for lightening his task.

The vital consideration of the half-tone process has always been the suitability of the original from which a reproduction is desired. This question has constituted a saving clause of immense elasticity upon which to hang a majority of negative failures. How much of the fault is really attributable to these causes, and how much to the exigencies of the time and price-cutting tactics now in vogue which do not permit of a second trial being made, is perhaps best known only to the employer.

However, it is not the mission of this article to deal with a scheme for financial redemptions and reconstruction, but to indicate in what practical manner a great improvement may be effected in the general quality of the work under existing conditions, cut prices and limited time notwithstanding. It was imperative in the days of the single-ruled screen that the fine etcher should be a capable draughtsman of utilitarian abilities, because, owing to the imperfect state of the process, a proof from the rough-etched plate prior to fine etching exhibited little more than a strong, flat suggestion of the original composed of enormous-sized dots, varying in shape according to the treatment it had received in the first deepening or rough-etching bath.

It showed little or no indication of the finer details of the original. These had to be supplied gradually, working up from the deepest shadows and dark half-tones by successive bitings or etchings, and covering in with lac or stopping-out varnish at each stage until the high-lights were reached. These latter, having been exposed during the whole series of etchings, had now diminished in size to little more than mere pinpoints. The plate at this climax was carefully cleaned and a proof pulled. If

the duration of each etch had been correctly judged, the proof now more closely resembled the original. If not quite right it was again rolled up with a preparation of wax and dusted with fine bitumen powder, which was afterward warmed in and the plate re-etched, afterward being passed on to the engraver, final proofer and mounter.

In these days a plate from the beginning till completion might have anything from three to twenty softening-off baths or etches, according to the subject. Sometimes in the case of a weak print, where the shadows were too open, the plate was given a very slight bath to remove any grease; then gummed and rolled up with ink and passed to the fine etcher who covered in the blacks, the plate then received another short etch, after which it again paid a visit to its foster-father to have the next tones covered, and (in accordance with the practice at the establishment which I have in mind as I write) a firm outline drawn round the chief features of the picture in order to rescue them from complete obscurity.

The effect of this treatment was most inartistic, and when it was found, as it often was, that the plate had not sufficient depth for this stage, the result was simply appalling. Particularly was this so in the case of portraits and art subjects. Imagine the Venus of Milo being converted into an inferior kind of stained-glass window saint! For this was the effect produced in the majority of instances in which this drastic treatment was resorted to.

Sometimes the desperate expedient to which I have just referred was varied by the alternative measure of working up the original, if a silver print, with a mixture of yellow and black to which was added a little gum. I never could quite comprehend why yellow and black should be used, for it made not the slightest difference what the tone of the original might be, the color formula was always the same. It was my impression from the first that the attempted remedy was much worse than the evil. Happily these dark days are past, and the dividing line between the process, as it now stands, and perfection is gradually thinning.

It may safely be assumed from the foregoing remarks that the class of original which stood the best chance of successful reproduction was one possessing the fullest gradation of half-tone, with well-defined details in both the shadows and high-lights; the same rule holds good to-day, and the original most closely approximating to these requirements will need no hand work on the block, provided the skill and care of the printer equals that of the operator.

The following list of originals best adapted for process is prepared in order of merit as the result of much careful study and observation.

1. Monochrome paintings in flatted oil, in which ivory black toned with raw umber is used in conjunction with flake white.

2. Monochrome painting in water-color, in which lampblack toned with sepia is used in conjunction with Chinese white.

3. A good transparency from original negatives (developed with MQ developer).

4. Certain kinds of slow, glossy bromide papers (developed with metol hydroquinone developer).

5. Enamelled P. O. P. prints toned in a rich gold bath to warm purple and free from double toning.

6. Deeply toned albumen prints.

7. Slow contact or gaslight papers (developed in HQ developer).

8. Smooth bromide papers.

The percentage of originals offering complete suitability to purely mechanical reproduction without the aid of fine etching is small, and, therefore, it is necessary, in order to render the finished block as perfect as possible, that where practicable all artistic manipulations should be carried out on the original and not on the metal. If this is done with skill and judgment, all other factors being equal, the finished block will yield a proof, which, for quality and sweetness, would be unapproachable by the older methods.

A serious consideration of the question will, I think, convince the practical man of the immense advantage of a system which does not aim at deposing the fine etcher, but rather to directing the artistic ability and skill which he should possess into a more useful channel for its exercise. Let me offer one slight illustration of how a few minutes' judicious work on a print may save half an hour of fine etching. Here we have an average silver print or

bromide in which the details are but faintly indicated in the lighter half-tones and highlights.

In the ordinary way it goes to the operator as it stands, and in exposing for the darker parts of the picture the modelling in the higher tones must necessarily suffer, more or less, according to the amount of white paper-flashing inflicted upon it, and when this negative is in turn printed on the metal it again suffers some deterioration, so that by the time the plate reaches the fine etcher it retains but little of the delicate details, and very often too little strength in the plate to supply it at this stage by fine etching, and even when sufficient strength is left to draw it on the plate the artistic skill of the fine etcher is too often taxed beyond his own.

This is a contingency which might be safely avoided if he were required only to trace over and emphasize the delicate details on the original, which work could, if necessary, be removed again and again until the result is quite satisfactory.

This is by no means an easy matter when dealing with the plate, for in the most expert hands the drawing of fine detail with lac over ragged points and on a reversed image is not nearly so certain as working in water-color or pencil on the original direct. The manner and extent to which this retouching should be done will depend largely upon the nature of the subject and the skill of the artist.

At present the working up is confined only to special cases, such as machinery and high-class catalogue illustrations, for which the customer is paying on a higher scale. To be entirely successful in the preparation of originals, it is imperative that the artist should possess some technical knowledge of half-tone negative making and the subsequent operations through which his work is to be passed. In a vast number of cases which have come under my notice, this lack of technical knowledge is strikingly evident, the general tendency being to work up in too light a key and with the wrong pigments.

The essence of success in this mission to eliminate fine etching in favor of the worked-up original lies in fully recognizing the many vicissitudes through which the average original has to pass (the worst of which is the *excessive* amount of white paper-flashing which tends to destroy all delicacy of detail in the lighter tones), and making provision accordingly. When this is done a plate will require no other attention than that which the rough etcher is able to bestow upon it.

With the bulk of cheap work little or no time is spent upon fine etching; yet it is surprising how very little need be spent upon a photograph to effect a vast improvement in the subsequent block, and all this without causing the treasury to feel one penny the worse.—*The Penrose Process Year Book.*

SODIUM SULPHITE AND ITS USES.

BY W. BAILEY.

PERHAPS the most generally useful chemical employed in photographic solutions may be said to be sodium sulphite, or "sulphite of soda." While taking little direct part in producing the photographic image, it has a wide range of utility in enabling the more active ingredients in a solution to perform their work with satisfactory results. For general use, a solution of 1 part in 20 water (= 5 per cent.) may be adopted as a standard. If desired to be kept for any length of time a "stock solution" of 1 in 4 may be prepared and diluted when required with 4 parts its bulk of additional water. If a developer is required to be made with any of the dozen or so reducing substances in use, an addition to our standard 1 in 20 solution of about 6 grains per ounce of pyro, or a corresponding quantity of any of the many substances (principally "made in Germany") which are advocated on account of special adaptability for various uses will give very nearly the average composition of "Solution A" in innumerable formulæ, while if we dissolve one part of crystallized sodium carbonate (or half the weight of potassium carbonate) in 10 parts of the standard sulphite

solution, we shall in like manner obtain "Solution B." It may be noticed that in both A and B the same strength of sulphite solution is employed, and the result of this is that in mixing the two, either in equal parts, as is suitable for ordinary purposes, or in such varying proportions as may be found desirable on account of incorrect exposure or for other reasons, the amount of sulphite per ounce of mixed solution will remain constant; which appears to be the correct principle, as the power of sulphite in preventing stain, etc., is governed by the proportion of that salt to the bulk of the solution, not to the strength of the latter as regards its other components; and for the same reason, if the developer is diluted, this should be done with the sulphite solution in preference to water only. The developer, when equal parts are combined, will contain, say 3 grains pyro, 24 grains sodium sulphite, 24 grains sodium carbonate per ounce; and about ½ grain per ounce, or upward, of potassium bromide will generally be found advisable, which may conveniently be added from a 10 per cent. solution. If a one-solution developer be desired, it may be made at once in a similar way, the quantities of reducer and alkali being half the amount per ounce that would be used for either solution separately. When amidol is the agent used, the addition of 2½ grains per ounce of sulphite solution, with bromide, forms at once an efficient developer, no alkali being required. In case of solution A being required to keep for any length of time it is necessary in the case of pyro and some other reducers to add a proportion of some acid or of an acid salt, the most effectual being potassium metabisulphite, of which about 4 grains to the ounce may be used. This should always be employed in solutions of ortol, to prevent stain which is liable to occur if it is omitted.

Our 1 in 20 solution of sodium sulphite will also be found useful in preparing an acid fixing bath, in which case an amount of citric acid equal to 1 in 80 of the sulphite solution may be added (or an equivalent quantity of other acids, if preferred). The hypo may then be dissolved to the strength required, generally 1 part in 4 or 5 for negatives. Other uses may be found for the sulphite solution, for instance, in intensification or reduction of negatives or bromide prints, being employed in the former case, to darken the image after bleaching with mercuric chloride, or in the latter, to check the action of a reducer such as ammonium persulphate.

Enough has been said to show the uses of this valuable salt, and the advantage of having a solution at hand, with regard to the preparation of which it may be remarked that the quantity desired of salts, such as sodium sulphite and hyposulphite, etc., may be conveniently obtained by measure, as a few experiments will soon show the space occupied in a measure glass by known weights of the substances, if they are in a fairly granular state, as usually found.—*British Journal Photographic Almanac, 1904.*

HEIGHT AND BREADTH IN PHOTOGRAPHY.

BY ANDREW S. DENNISON.

WHEN it becomes necessary for the lay press of the country to call the attention of photographers to an error in the correct rendering of their sitters it is time that the criticisms should be heeded. The article cited below appeared in a recent edition of the *New York Evening Sun*, and certainly voices a state of affairs that exists in the work of many men otherwise beyond criticism. The limitations of photography are numerous, but as the *Sun* points out, if it be possible to reproduce with pleasing accuracy the features of a sitter, it should also be possible to convey in the photographic picture some idea of the relative height and breadth as well. The criticism is a very broad one, and of course a reason exists in many studios, owing to limitations of space, lenses, etc. It is, nevertheless, a fact that American photographers photograph their sitters, or rather their standing figures, from a position too nearly level with the lens. The result of this is frequently apparent, and

the figure has of necessity a squatty and dumpy appearance when handled in this way. One of the first tenets observed in the studio of an English worker known to the writer was that standing figures, particularly those of women under the average height, should be posed upon a step or balcony slightly above the level of the floor, and that the drapery of their costume, wherever possible should be brought toward the front and allowed to drop over the edge of the support upon which the figure was placed, with a view to adding apparent height to the subject. There are many ways in which this effect may be obtained to great advantage, and if the average photographer will avail himself of such opportunities as may present themselves or he may be able to invent for raising the figure slightly above the level upon which the camera is ordinarily worked, he will interpret the relative height of his subjects more satisfactorily than under the present methods of studio working,

The article referred to follows:

"Why is it that most full-length photographs appear to curtail the figure? Not one woman in twenty who is photographed for a full-length likeness but appears to be several inches shorter than she actually is. She is lucky if the camera doesn't seem to broaden her into the bargain. Such is the effect in many pictures. We see a photograph of Maxine Elliott, whom we know to be as divinely tall as she is divinely fair, and behold! she is shortened and broadened into quite a different looking woman.

Julia Marlowe is scarcely middle height, but in effect she is taller than her full-length portrait recently reproduced in a number of the magazines made her out. According to it, she was almost squat—sawed off and hammered down. Photographs immortalizing the new fashions in woman's dress—so popular a method of illustration in woman's magazines nowadays—do much to make one think that the styles are all for dumpy women. Rarely does any kind of figure but the short and fat appear in such cuts. No need for the journals to keep continually reminding us that their photographed fashions are taken from life. A glance at the abbreviated figures proves it. The picture-takers have pretty well mastered the trick of making a woman's face appear younger and prettier than it is. They should now turn their attention—and their cameras—to flattering her figure. Fame and fortune await the photographer who can induce his lens to make most women look taller than they are."

REVISING NEGATIVES.

BY C. A. ZIMMERMAN.

THE output of a studio which relies for its subsistence alone upon low-priced work is surely mechanical, monotonous, and full of many glaring faults; at any rate, many things are permitted to go out in the rush that could be done much better if there were time for careful and serious deliberation. I do not say that such work cannot be delivered, for it is an established fact that it can be sold, and it is not necessary here to enter into the why's and wherefore's. To turn out the greatest amount of work in the shortest possible time, one must necessarily cut the corners, and for such as feel compelled to run a "picture mill" there will be very little of interest in this paper to command the attention.

The negative ground out of the photographic "mill" aforesaid, after fixation, proper washing, drying, and proofing, goes straight to the retoucher, never to return for consideration. Not so with the negative the product of the man of the higher plane; his is subjected to a rigid examination for defects; notably failure to come up to his ideal, according to the effect striven for under the skylight. A good dark-room operator is a very valuable second to his chief and can support his efforts in an intelligent manner; often the developing is done by the one making the sittings. There never was a time when so much additional work, besides merely developing, was done as at the present. In derision this has been called "faking;"

call it what you will, it is the correct thing to do. The work of the engraver is all for naught unless the pressman's manipulation emphasizes some portions, suppressing others, properly preparing (or "faking") the block until the unthinking press roller and feeders turn out an admirable result. The most important betterments of a negative consist of intensification or reduction either locally or generally. I will briefly sketch the methods, as well as give the formulas that seem to offer certain results. A reliable one-solution intensifier is easily prepared by dissolving one ounce of iodide of potassium in 5 ounces of water, which may be dissolved in a thirty-two ounce bottle; of this solution pour one-half ounce into a graduate as a safeguard against getting an excess of bichloride of mercury; into the four and a half ounces of the re-remaining potassium solution drop slowly, shaking the latter while doing so, a saturated solution of bichloride of mercury. The red precipitate resulting will dissolve, and presently the solution will remain pink or quite red; not another drop must now be put in, but the half ounce before mentioned is to be added and the solution will lose its redness and become quite clear. Three-quarters of an ounce of hypo is then to be added to the solution, after which the quart bottle is filled up with water; it is then ready for use, but should be kept in the dark, as the bright light seems to havè a precipitating effect. There is some prejudice against this one-solution intensifier, arising from the subsequent yellowing of the imperfectly washed plate; few persons give the treated plate sufficient washing, and unless this is done failure is certain; this intensifier may be used on a dry plate or on one just slightly washed out of the fixing bath. For local intensification, it is best where a rather sharp lighter point is desired, to wet the plate to be treated, blot it with a lintless blotter, and then apply the solution with a camel's-hair brush, frequently examining the plate by transmitted light for further treatment if it should be found necessary. A tuft of absorbent cotton rolled properly about a match or similar stick will be found almost as efficient as the brush. To strengthen the highest light on the forehead it is best to drop the solution from the end of a small rod on to the wet negative and to at once wash off, and repeat the dropping and alternate washing to avoid an edge. High lights on draperies are best added to on the blotted plate. In all these operations it is best not to overdo the matter, rather stop short of the full effect of intensification, relying somewhat on the drying effect. If the action is too much prolonged the shadows are apt to take on a yellowish deposit, which of course can be removed by a very short immersion in the fixing bath; too much of this immersion however will reduce the plate to its former condition. When this latter has happened it will be found that the plate does not lend itself readily to reintensification; it is claimed that it would be necessary then to bleach the plate in a plain bichloride of mercury solution, to be followed by ammonia or sulphite of soda, to produce any effect, which is of course not possible in local intensification.

We will now suppose that we have proceeded with local intensification as far as judicious, and the plate needed no local reduction. The plate has been dried and there are yet some points which could be improved by further action, which, however, it does not seem that any solution could assist in perfecting. There are fortunately many other methods which enable us to add to both light and half-tones. Hitherto we have given only one side of the plate attention; the other, or glass side, is quite capable of lending itself to after treatment. I have always found that a bottle of ground-glass substitute was a very desirable factor at this stage of the operation. The glass side must be absolutely clean or the aforesaid solution will not cover evenly; it is best to wait until the film which has formed is thoroughly set, for it will take the following treatments much better in that condition. A cake of Prussian blue, one of Indian yellow, and one of Indian red, together with some powdered crayon and a "stump" will now be necessary. The stump will be found to be a very good medium to apply the powdered crayon over that portion of the negative which needs it, and it is, of course, to be done on the ground-glass side. By holding the stump at acute angle to the glass and priming it with sufficient

amount of the crayon you will be able either to spread a very even layer or to put in some sharper touches.

The Prussian blue in a more or less thin wash will flow over the matt surface of the substitute almost as well as upon paper. Prepare the blue wash in sufficient quantity to cover, for you would not find time to mix more should you run short, and a bad wash would result from the wait.

The Indian yellow will also lend itself to a wash over thin places that need reinforcing. The Indian red will act more like the real opaque, and is only to be used when you wish to produce a perfect white on the print. There is still another method of spreading a graduated tint of either color I have mentioned, and that is by pressing the finger into a rather thick pool of color and dabbing it repeatedly over the spot to be affected; enough color, and in a perfectly graded manner, will adhere to the ground-glass surface. A little practice is necessary, and you will be able to do some clever blending of color by this method.

Another means of which you may avail yourself to produce a slightly different tone, or to slightly deepen a shadow, is to scrape away with a suitable knife or etching tool the ground-glass substitute. The effect of that medium is to very perceptibly intensify or darken the plate where it is flowed; the removing of it in places will make quite a difference.

It is quite possible to work upon a plate having a perfectly plain background, so as to produce a very pleasing delicate effect of background, with color stump and the etching knife. The work is, of course, to be applied to the reverse side and over a film of the aforesaid ground-glass substitute.—*Northwestern Recorder.*

NOTES FROM MY NOTE BOOK.

BY ALEXANDER MACKIE.

RETOUCHING MEDIUM. One of the best mediums for applying to the negative in order to give a sufficient tooth to the retouching pencil consists of ordinary turpentine partially oxidized by exposure to light and air. If an ordinary four-ounce bottle be filled to about an inch deep with ordinary turpentine—the turps of the painter—and placed on a window-sill, uncorked for a week or so, the contents will be found to have acquired a new character: it will not be completely volatile as fresh turpentine is, or should be, but a thin layer applied to a negative in the usual way of using a retouching medium will leave on evaporation, even if heat be used, a perceptible film. Prolonging the oxidizing action naturally increases the amount of unvaporizable material, and at length the bulk will become as thick as treacle. At any too advanced stage the medium can be brought to usable strength by dilution with fresh turpentine.

RECOVERING GOLD FROM OLD SULPHOCYANIDE BATHS. There are several reasons why it is preferable to use a fresh toning bath for each batch of prints, but this necessitates some overexpenditure of gold, as the best results are only obtainable when there is some excess of gold in the bath over the amount actually used. There is no necessity, however, that the gold should be absolutely lost. It may be precipitated from the discarded toning bath in the metallic state in a very simple way. Take a small quantity, say about an ounce, of a solution of sulphite of soda containing about 10 per cent. of the salt, add to it a few drops of sulphuric or hydrochloric acid, just sufficient to set free sulphurous acid, the presence of which may be detected by the smell, and add the whole to the toning bath. In a day or so a brown precipitate will be found at the bottom of the vessel, which is metallic gold. The clear solution may be decanted off, the vessel refilled with a new supply of the bath, and the operation repeated until sufficient gold has been accumulated to make it worth while to turn it into money. The amount of sulphite used is practically immaterial. The disengaged sulphurous acid is the agent.

THE DARK-ROOM LAMP. It is a frequent experience that the paraffin lamp in the dark-room lantern, although working admirably at first, after a time begins to give a dim light and to smoke the glass. This is generally attributed to the burner wearing out. There is, however, nothing in a burner to wear out. That it fails to act sufficiently is due to a cause entirely preventable when its action is understood. It will be found that in a flat-wick lamp the wick tube is surmounted by a dome having a slit through which the flame obtrudes. The base of the dome consists of a stage of perforated metal. The essential to perfect combustion of the paraffin oil or kerosene is a strong draught of air—hence paraffin cannot be burnt satisfactorily in an ordinary colza oil lamp. The dome is for the purpose of conducting the up draught to the bottom part of the flame, so as to ensure a sufficient supply of air for perfect combustion. It will be found generally that the perforations of the platform are unnecessarily small; and as the perforated metal acts as a strainer, the holes become partly choked with particles of flue and other solid impurities of the air. The fact that the platform is usually wet with the slight overflow of oil helps the choking by providing means for the floating particles to adhere, and in time the lamp burns badly simply from insufficient supply of air. The remedy is the obvious one of clearing the air passages. It will generally be found that the dome is merely clamped on to the stage by bent tongues of metal, and a little mechanical skill will remove and replace it. Another cause of imperfect burning is due to the fact that the wick accumulates the aqueous and other impurities of the oil, and long before its length is consumed it ceases to act properly. A new wick should be fitted from time to time, and care should be taken before inserting it to dry it thoroughly. A damp wick will burn badly from the start. The pinion arrangement for raising and lowering the wick will sometimes get out of order, and the simplest remedy for this is to obtain an entirely new burner.

THE FERRICYANIDE REDUCER FOR BROMIDE PRINTS, ETC. Many photographers have complained that the ferricyanide of potassium and hypo reducer, although answering well for the reduction of negatives, in their hands produces stains when used for reducing bromide prints, and even for lantern slides. This arises sometimes from neglect of reasonable precautions, and sometimes from natural causes unconnected with the reducer itself. The reducer itself, although compatible with hypo, is not compatible with the fixing bath, which consists, after a plate or a print has been fixed in it, not of simple hypo and water, but of hypo, a silver salt and water, the silver salt being derived from the unreduced silver compound of the plate or print which it is the object of the fixing bath to remove by decomposition. With a solution containing this silver salt, as the fixing bath does, the ferricyanide enters into a complex series of chemical reactions, manifested by the original yellow tint of the solution turning brown and rapidly ceasing to act as a reducer. Thus a print introduced into the reducing bath directly from the fixing bath, or after insufficient washing, is liable to acquire a stain, and that without the intended action being accomplished. The moral is, that the print or plate should be well washed before attempting the reduction. But there is another way the reducer may produce trouble, through no fault of its own. When any of the organic developing agents have been used in the production of the print, the image consists not only of reduced silver, but partly of an organic deposit. The silver is removed, dissolved, to use the usual expression, by the reducer, but the organic deposit is left, and this is generally of a brown or reddish color. Hence it may easily arise that the reducer may be blamed for what has really nothing to do with it. With due precautions it is pretty safe to use the reducer to act generally when the amount of reduction required is not excessive, or to obliterate entirely a light tone, but the removal of a dark tint is attended with more risk.—*The Photogram.*

Official Photographer to the World's Fair. We learn, as the MAGAZINE goes to press, that Mr. Wm. H. Rau, of Philadelphia, has been appointed to this important position. We have only space in this issue for congratulations.—EDITOR W. P. M.

TECHNICAL IDEALS.

BY CHAPMAN JONES.

TECHNICAL perfection is often glibly talked about, but not always with discrimination. On one or two occasions I have myself referred to it, with the result that I have many times since been represented as having said what I did not say, and what I certainly never had in my mind to say.

Perfection in human work is not always, if it is ever, a fixed quantity, but is to a certain extent a matter of opinion. Of course there are certain common details concerning which all are agreed. A technically perfect negative or lantern slide must be free from spots, blotches of stain, and evidences of uneven development. A technically perfect print on paper must be free from unsightly variations of color, evidence of accidental over or under exposure, and all effects that would at once be classed by universal consent as faults. But this is only the beginning of technical excellence in photography.

There are matters that are still often considered essential for the attainment of technical perfection. Juicy or velvety blacks in prints, brilliancy in negatives, boldness or richness in either negatives or prints, a little bit of "clear glass," the "bloom" of wet-plate negatives, and all such qualities of photographs are not the elements of perfection. In particular cases they may be desirable, while in others they may be faults. The old ideas that a landscape or building to be photographed at its best must have the sun shining on it from a point behind the camera and a little to one side or the other, that the morning light is better than the afternoon light, and all such conventional notions are of the same kind; and as they tend to narrowness rather than freedom, to mechanical sameness rather than intelligent and expressive variety, they positively hinder the progress toward technical perfection.

A negative is a tool made for the production of a print. The perfection of a tool is judged of by the manner in which it fulfils its function. But the work done by a faulty tool may be perfect by reason of the skill of the worker, so that a good result is not in itself proof of the goodness of the tool used. A perfect tool may need skill in the using of it, but it will serve its purpose well and will not have to be "made to do."

A negative cannot be described as technically perfect unless the use for which it is intended is known, as it may serve well for one purpose and be useless for another. It may, for example, be perfect for enlarging from, but useless for direct printing. I think that the nearest approach to a definition of a technically perfect negative is—the negative produced by a perfect technician. It remains then to define the perfect technician. I should describe him, so far as the production of negatives is concerned, as the photographer who can with certainty produce a negative that will give a preconceived print by a predetermined process. Of course the perfect technician does not nor ever will exist; he is the ideal worker that we strive to approach.

There are many who will consider that a certain character of gradation, and a certain degree of sharpness, or it may be a certain differentiation of sharpness of definition, ought to have something to do with the definition of a technically perfect negative. But these matters must be allowed to have to do with the pictorial rather than the technical details. Artists may differ as to the kind of definition and gradation that they desire, but the perfect technician is he who has so thorough a control over his appliances that he can with certainty produce whatever he wants. He may be devoid of artistic feeling, and care nothing for pictures, yet he may be able to produce at will the sharpest or the most diffuse definition, the fullest or the most meagre range of gradation, to emphasize the detail in the high lights or in the deep shadows, and, in short, to produce any possible variation at will.

There is little need to point out the desirability of technically good work. A fine idea is much more likely to be appreciated when it is perfectly expressed. The grandest orator who has nothing to say is truly tedious, but who will attend to the greatest thinker if he only mumbles unin-

telligible sentences? To imagine that technical perfectiou is in any way opposed to pictorial excellence in photography is absurd—the one is the idea and the other its expression.

Technical perfection being the result of perfect control over the means employed, the means must be of such a nature that they permit of being controlled, or technical perfection cannot result except indeed by a mere fluke the possibility of which is not worth consideration. Many years ago I said that a perfect negative, as developed, must consist of pure silver in clean gelatine, because if there is anything besides these it is not controllable. Developer stains cannot be controlled either as to their color, their distribution, their quantity, nor the effect they will have in the printing process. If present, therefore, the negative cannot be technically perfect, even though when removed the resulting print may be inferior. Ammonia as an alkali in development is uncertain because of its volatility, and also because it is a solvent of silver salts. It may be possible to attain great skill in its use just as it is possible to get very decent music by the incorrect manipulation of instruments. But the practice is better devoted to methods that may take longer to learn but give greater possibilities.

As I am not seeking here to indicate specific procedures that make technical excellence possible, the two examples of the principle that should guide the photographer in his selection of methods will suffice as illustrations. If technical ability were more common, we should hear less of the manipulation of the print after its production. I do not wish to suggest that the popularity of the chromated gum method of printing is the immediate result of technical impotence—I believe that in some cases it is distinctly not so—but I should like to suggest that every one who uses it or follows practices analogous to those associated with it, should ask himself, and endeavor to honestly answer the question, whether he does not use it as a cloak to cover his photographic sins and shortcomings—whether he is not like a would-be musician trying to play music before he has learned to play his scales. And it *is* possible to "learn" pieces of music, and to perform them creditably, without any knowledge of music or of the instrument employed.—*The Amateur Photographer.*

HOW TO ASCERTAIN THE EXPOSURE WANTED WITH DIFFERENT COLOR SCREENS.

BY T. G. WATSON.

THE photographer who has bought, or who has made for himself, color screens or filters for use with orthochromatic plates, must possess an accurate knowledge of the additional exposures required with them before he can use them to advantage. The characters of these screens varies so enormously, from those of a pale yellow tint used in flower photography, or to cut out the haze which conceals distant objects, to those of a deep orange used in copying paintings, or to correct all the colors in landscape work, that the exposure may be anything between twice and sixty or even one hundred times that required when they are not employed.

In making such tests it is necessary that the light employed should be that by which the ordinary work is to be done, or the results will be worse than useless; they will be misleading. Every one knows that daylight is composed of colored rays in certain proportions. We have all seen the light decomposed into its component parts by examining it through a prism (such as the once popular chandelier drops), and we all know that artificial light is of a very different color from daylight.

If on a foggy day when the street lamps and the shop windows are lit up, the fog lifts for a minute, the great difference in color between the various artificial lights and between them and the daylight will be strongly apparent. The electric arc light will be seen to be violet in tint, the incandescent electric lights and ordinary gas-

lights deep yellow, and incandescent mantles pale green or pale pink. In such weather the daylight is far from pure, but even then the difference between it and the artificial lights is enormous, and it will be readily understood that the effects of such different lights on a color sensitive plate will be very various.

A color screen that would act satisfactorily by, say, gaslight, and necessitate very little addition to the exposure required by the plate when it is not in use, might prove insufficient to be of value when used in good daylight, or require a considerable addition to the normal exposure. The compensating exposure would vary with the source of light employed.

As in general work, the exposures will have to be made in the daytime, the tests in such cases must also be made by daylight. However expeditiously the tests are made, they will occupy some time, and while it is probable that if a bright day at noon is chosen for the work, the light may remain constant for an hour or so, it is desirable to adopt methods that may be applied in as little time as possible.

Recently a piece of apparatus was suggested by Dr. L. Gioppi that meets the case fairly well. Two sheets of thin opaque card are cut to fit in the rear of the camera, immediately in front of the reversing back. To avoid the risk of straining the woodwork it is desirable that the card should be as thin as possible; in fact, with a little care in handling there is no reason why black needle paper should not be used, but the exceedingly thin brass known as paper or letter brass is much more convenient to handle than either. Each sheet is divided by pencil lines into six parts, one line being drawn down the centre in one direction, and two dividing the sheet into three equal parts in the other direction. From one of these shields one of the corner pieces is removed, and from the other a middle section from the centre to the edge. By turning the first sheet round, each of the four corners may be exposed in turn, and by the use of the other each of the middle sections may be exposed, making six exposures in all.

By way of illuminating the plate evenly a sheet of white blotting paper should be pinned up where the unobstructed light from the sky may fall upon it; north light is best, but in any case direct sunlight must not strike upon it. The camera should be set square to the paper a few feet away, and if $f/11$ is used, one second without the screen will be a convenient exposure. The shield with one corner cut out is placed in position, and the dark slide bearing a plate of the brand with which the screw is to be tested is inserted. Then in the absence of the screen an exposure of one second is given. The shutter is closed, the reversing frame removed, the shield is turned round, and the dark slide is again placed in position. The screen is now fitted to the lens for the remaining exposures. An exposure of two seconds is next given. Again the shutter is closed, the shield turned upside down, and a third exposure given, this time of four seconds, and so on, doubling the exposures each time.

When all six exposures have been made the plate is developed, and it will not be a difficult matter to estimate which of the five exposures with the screen has given the same density as that obtained with the exposure without the screen.

The exposures in such a series will range from twice to thirty-two times the normal, and will be sufficient for all but the screens of deepest tint. When screens that compensate for the red rays have to be tested, the exposures may begin with eight or sixteen times that given without the screen.

When two or more screens have to be tested at the same time, a method that we have occasionally employed will prove more advantageous, as all the tests can be made upon the same plate. In this case one shield only is required, and is cut vertically into two or three strips; one strip more than the number of screens to be tested. In comparing two screens, for instance, the shield is divided into three, and the centre strip is removed while the exposure without the screen is being made. The exposure may be as before, one second.

The central strip is then replaced, and one of the side strips is removed. The screen to be tested is placed in position, and the cap being on the lens, the shutter of the slide is drawn. An exposure of two seconds is given, and the lens is capped. The shutter is pushed home say an inch,

and another exposure of two seconds is given. Again the shutter is driven in an inch, and then four seconds' exposure is given. This is repeated till the shutter is pushed quite home, the exposure being doubled each time. The actual exposures will be two, four, eight, and so on, as before, and if it is desired to carry the exposure very high, say one hundred and twenty-eight times that given without the screen, it is only necessary to divide the length of the plate into seven sections, say in the case of a half-plate of three-quarters of an inch each, instead of one inch, as suggested above, to accommodate them all. Pencil lines ruled across the inside of the shutter will serve as guides in pushing it in after each exposure.

In testing the second screen the one side shield is replaced, and that at the other side is removed. When all the exposures have been made, and the plate is developed, it is even more easy to estimate the densities than by the method first described as the part exposed to white light lies adjacent to each of the parts exposed through the screens. This advantage may be secured even when three or four screens have to be tested by having strips between them exposed without the screens, and all these exposures may be made at the one time.

It is so desirable to have all the tests upon one plate, thus avoiding irregularities due to differences in development, that it it is well worth while to devote a little time to cutting and fixing the shields, so that they may be removed and replaced speedily. At the same time as it is desirable to waste little time between the exposures lest the light should alter the while, this arrangement will be better as being speedier than the former.

In testing screens by artificial light the same method of working may be adopted, the light being thrown upon the white blotting paper, but all the exposures must be many times longer. Time may be economized by directing the lens to the source of light and by interposing between them two thicknesses of ground glass set about one inch apart. With the electric arc the light reflected from the blotting-paper will prove speedy enough. With oil lamps, gas jets, incandescent mantles, or incandescent electric-glow lamps, it will be better to transmit the light through the ground glass as suggested, and two or more of the lights may be used, since so long as the light remains constant the intensity of it does not affect the results, but is simply a matter of convenience.

It may be objected that in this system of test exposures there is no provision made for tests between a certain exposure and and one of twice its duration. Nothing closer than this is ever wanted in practical work.—*Photography.*

BROMIDE PAPER.

A PRACTICAL exposition of the advantages of bromide paper formed the title of a very interesting lecture before one of the English societies by Mr. F. Atkinson in the latter part of January. As an advocate for bromide paper, he claimed that if properly used its results could vie with those on platinotype, while it had the double advantage of being printable by artificial light, and could be used for direct enlargements. The lecturer strongly urged his hearers not to be led into changing their developer merely because some one else showed exceptionally good results with a different formula, but to as far as possible ascertain what was the best adapted, and stick to it. He said amidol is perhaps the most popular, and the lecturer's formula is as follows: Two ounces of a 10 per cent. solution sodium sulphite, 50 minims of a 10 per cent. solution bromide of potassium, 10 grains dry amidol, and water to 4 ounces. As a tip which may save weighing out 10 grains amidol, measure exactly 20 minims in a minim glass. He preferred to make up as follows: Five grains amidol, 65 grains of sodium sulphite, 1 grain of bromide of potassium, 2 ounces of water. Crush the sulphite and dissolve the three ingredients in 2 ounces of hot water, and, if required quickly, place the measure in a dish of cold water, and it soon attains a working temperature. If enlargements are made, 6 or 8 ounces are made up,

and the chemicals advanced accordingly. Continuing, Mr. Atkinson said, as to the the class of negative, that the ideal was described as being sharp, free from fog, good gradation, not too dense in the high lights or clear in the shadows, which, of course, sounds very nice, and readers should try to get as near these points as their experience will allow. It does not mean that bromide paper cannot be used in conjunction with any inferior class of negative, because the lecturer claimed that there was no other process in vogue at the present time which would not produce better all-round results from almost any kind of negative, the final picture being, of course, according to the manipulative skill of the worker, and much dodging or working up is possible. Negatives which are useless for some methods will yield very fair prints by this one. The quality of the print depends largely upon the exposure, and it is always advisable to work at one distance from the source of light, and vary the time. It is, of course, difficult to advise upon the requisite exposure, but it is best to make a graduated exposure of some three or four lengths, say five, ten, and fifteen seconds, respectively, when the approximately correct exposure may be seen. If properly carried out, you have a print with pure whites and various degrees of blacks, just as may be desired, or from pencil-gray to an intense black. As we have not the latitude in bromide paper which the lantern plate, etc., allows, one must get as near correct as possible. If it is known to be over-exposed, dilute the developer. While black is very difficult to improve upon from a pictorial point of view, a subject may call for a warmer tone. The quick-speed papers, on account of the coarse particles of silver, tone more slowly than the slow papers, and the latter being composed of fine particles, work faster during toning operations.

PHOTOGRAPHERS' ASSOCIATION OF IOWA.

THE Iowa Photographers' Convention will meet in Des Moines, Ia., April 19th to 21st. The Executive Committee is expecting one of the greatest conventions ever held in the State. The secretary is busy answering correspondence concerning the coming event. Some of the principal features of this convention are the following: Lecture by G. M. Bolton, Sec. of P. A. of N. E., "How to Photograph Children." Geo. G. Holloway's lecture and demonstration. Demonstrations in posing and lighting by the Iowa photographers. For sale and exchange department; ice breaker; on Tuesday night, flash-light, demonstrated by Nicholls, and the awarding of prizes by popular vote of the convention.

There will be but three prizes offered at this convention. First, the Full Trophy; second, Interstate Exhibit; and third, Grand Portrait Prize. This last class will be open to out-of-State photographers only; requires six pictures, no restrictions as to size; entry fee, $3.00; a beautiful bronze pitcher will be awarded to the one receiving the majority of votes.

For particulars write to the Secretary, C. F. Townsend, Muscatine, Ia.

The souvenir programme which is being prepared is a work of art, containing some fifteen or twenty elegant half-tones, made from portraits by the leading photographers of the State, and will be issued by the 1st of April.

The American Aristo Company will be on hand as usual, and, aside from the regular demonstration, will give something of interest to every photographer who attends.

It is believed that every photographic studio in the State of Iowa will be closed during the time of this convention. The same hall which was used last year has been secured again, and affords ample room for displays and exhibits by manufacturers and dealers.

The programme will give a sketch of the hall, giving the name of each firm that will be represented. Last year the Iowa Convention was a success, but it is believed that the coming convention will be the best in the history of the Association.

PHOTOGRAPHERS' ASSOCIATION OF PENNSYLVANIA, EIGHTH ANNUAL CONVENTION.

THE next convention will be held at Harrisburg, May 24, 25, and 26, 1904.

As other Associations are working on educational lines, and as our membership is made up of progressive photographers, who realize that knowledge is the prize most worthy to strive for, photographers should study their own work, try to ascertain where and by what means it may be improved, and in what way their business can be made more successful.

Making work for exhibition at our conventions, and attending the meetings of the Associations where the work of others can be studied, where lectures by the brightest minds of the day can be attended, where members of our craft can exchange ideas, where the spirit of fraternity and good fellowship may enter the minds and hearts of every member of the Association, the Executive Committee have decided on

A New Departure. "All things come to them that wait." Many of our members have urged your Executive Committee to abandon the Prize System so long in vogue (very near all other Associations have dropped it). So to keep in the line of progress in our chosen profession, and to have a convention that will bring the most good to our members, your Executive Board, after careful deliberation, have concluded to abandon the old-time method of awarding medals and substitute a General Exhibit intended for study and comparison. All pictures submitted will first pass through the hands of a competent committee who shall decide if they have sufficient merit to be accepted and hung in the art display.

A beautiful certificate of acceptance will be issued to each exhibitor, if the rules have been complied with. Give us your hearty support, and we promise you a nice clean convention—the best yet—and no disappointments.

A number of prizes, medals, and trophies will also be competed for under special classes. Full particulars may be had by addressing Chas. R. Gates, Secretary, Lebanon, Pa.

PHOTOGRAPHERS' ASSOCIATION OF NEW ENGLAND.

REPORT OF THE EXECUTIVE BOARD.

THE Executive Board of the P. A. of N. E. held its meeting for organization at Boston on the 13th of February, the full board being present, as follows:

George E. Tingley, President; E. G. Merrill, First Vice-President; George M. Bolton, Secretary; S. M. Holman, Treasurer.

On motion, it was decided that the next convention of the Association be held at Mechanics' Building, Boston, from August 24th to 28th, inclusive.

The Executive Board believes itself very fortunate in being able to secure this building for its next convention. This building has nearly five times as much space as Copely Hall, where the meetings of the Association have previously been held. Paul Revere Hall, where the executive meetings will be held, is one of the finest in the city of Boston. There is ample room for the use of manufacturer and dealer, and a fine exhibition hall, with plenty of light.

It is intended that this convention shall be the grandest one ever held in the history of the Association. The hearty co-operation of the manufacturers and dealers has been pledged and a general response from photographers throughout the East to furnish pictures and to attend.

The Executive Board extends a hearty invitation to every photographer to send an exhibit and to attend the meeting.

Full information regarding entries will be furnished by the secretary,

GEORGE M. BOLTON,

Rockville, Conn.

WORLD'S PHOTOGRAPHY FOCUSED.

An Enlarging Hint, an Effective Dodge in Bromide Enlarging. If the easel on which the bromide paper is to be pinned, for the enlargement or direct printing, be covered with a light-gray or smoke-color paper on which the arrangement, size, and focus of the image are determined, the advantage over white will be very considerable. All workers are familiar with the difficulty of determining the outlines of the bromide paper when backed upon a white background. The result of this difficulty is often to be seen in the enlargements the lines of which are out of horizontal or perpendicular. If, however, the white bromide paper be pinned upon the smoke surface, the outlines of the paper are plainly visible even in the subdued light of the copying-room, and its position with reference to vertical and horizontal lines may easily be determined. The outlines also of that portion of the negative included in the enlargement are plainly indicated by the paper itself. Accurate focusing may be obtained by pinning a piece of white paper of the same size as the bromide to be used over the gray if desired.

A Printing Hint. Rough platinum paper, although admirably suited for landscape work and large heads is not equally well suited for small portraits and work in which fine detail is to be shown, as the grain of the paper when the light falls on it from one side produces shadows which obliterate the detail. A short time ago I had a portrait negative to print, the face being about three-quarters of an inch long, but the only paper I had by me was some of the Platinotype Company's CC. As the prints were wanted immediately, there was nothing to be done save to print them on this paper. But when they were dry I felt sure the lady for whom they were intended would not care to see her skin looking as coarse as it appeared on the paper. An idea, however, occurred to me which I carried out.

I laid the print face down on a thick sheet of glass—one of my cutting shapes—and on it laid a piece of the semitransparent damp-proof paper, in which many plate-makers wrap their dry plates before packing them in the cardboard boxes. Through this I could see the print well enough to distinguish the position of the face and hands, so that I could with the smooth handle of a knife rub down all the parts of the print that represented flesh. The paper that I had laid on the print protected its surface from being scratched and prevented it showing the strokes of the knife handle. When I had finished, the result was that the parts of the print which had received this treatment were as smooth and as full of fine detail as if the print had been made on smooth-surfaced platinum paper.

This method might be employed in other cases, for there are subjects in which we should like to have fine detail in certain places, while other parts would be better represented if they had that peculiar softness that rough-surfaced printing paper gives.—*British Journal Almanac.*

EDITOR'S TABLE.

THE fourth number of Mr. H. SNOWDEN WARD'S most interesting and valuable series of articles on *The Portrait and the Studio*, which it was expected would appear in the April issue of this MAGAZINE, has been held up, owing to delays in the Custom House, which made it impossible to get hold of the blocks in time for publication. The article will take its place in the May number, after which it is believed that no further difficulty will arise in the receipt of copy and cuts regularly. We regret to break the continuity of the series, even by the lapse of a single month, but believe our readers will accept this explanation as a good and sufficient reason for the omission of the fourth number from this issue of the MAGAZINE.

WE are in receipt of a letter from Col. J. A. OCKERSON, Chief, Department of Liberal Arts, of the Universal Exposition at St. Louis, 1904, regarding the photographic jury of selection, which will interest all photographers who have the good of the profession at heart. Col. OCKERSON writes in reply to an inquiry from WILSON'S PHOTOGRAPHIC MAGAZINE, as follows:

"All pictures accepted for the Department of Liberal Arts will be viewed by an International Jury of

Awards. I expect to have the services of a Hanging Committee to aid me in selecting the pictures suitable for acceptance."

It is deeply to be regretted that so many conflicting arrangements have been made necessary in the matter of photographic displays at the World's Fair. There has come to be a very general feeling of uncertainty and even of apathy in the matter among the working photographers, but it is earnestly to be hoped that a large and representative collection of the work of American photographers will nevertheless be in evidence. Members of the craft are urged to take the matter up and make displays of the highest possible order of excellence. The Exposition is to be of universal interest, and American photography should be a strong point.

Further information regarding the Jury of Awards will be published from time to time, as it can be obtained.

WE would again warn the photographic community against any and all persons representing themselves as agents for WILSON'S PHOTOGRAPHIC MAGAZINE and seeking to obtain money for subscriptions. The following letter is one of several that have lately come to the EDITOR'S office:

"TROY, N. Y.

DEAR SIRS:—On the 16th of February I subscribed for your PHILADELPHIA PHOTOGRAPHER through a man representing himself as your agent, and paid him for one year's subscription. I thought, perhaps, I had better write you and learn if the man was your agent and if the transaction was correct. He claimed his name was H. E. Ray, and that he was a resident of Binghamton, N. Y.

Yours truly,

——— ———."

WILSON'S PHOTOGRAPHIC MAGAZINE has no subscription agent in the country, and photographers have been repeatedly warned against subscribing except through the recognized dealers in photographic supplies or through the publication office direct.

PHOTOGRAPHERS who are interested in extending the work of the studio and widening the range of profitable photography will do well to read No. 58 of the Photo Miniature series, entitled *Outdoor Portraiture*, just issued by the publishers, Messrs. TENNANT & WARD. It contains many suggestions of practical interest and value to the working photographer, and ought to serve as a valuable assistant in working out many of the studio problems. It must be admitted by all that successful photographic portraiture must contain pictorial elements, and whether this attribute represents the work of the old school of portrait photography under the skylight, or the newer school of pictorial photographers, so-called, the difference is only a local one. Both have their adherents and both their advantages. If, therefore, the good points of the two may be merged, the result ought to be beneficial.

WE are glad to note that the Southern States are coming into line for Convention work under the name of the Southern Tri-State Photographers' Association. This Association embraces the States of Georgia, Alabama, and Mississippi, and was organized at Chattanooga, Tenn., last June. The first Convention is listed for Atlanta, Ga., from July 5th to 9th next. The Board of Officers of the Association is as follows: President, W. M. Stephenson, Atlanta, Ga.; Secretary, Chas. R. Turner, Tuscaloosa, Ala.; Treasurer, F. S. McKnight, Aberdeen, Miss. The Vice-Presidents from each of the States follows: From Georgia, C. W. Motes, Athens, and M. Edw. Wilson, Savannah; from Alabama, E. B. Peddinghaus, Birmingham, and Wm. A. Reed, Mobile; from Mississippi, Wm. F. Bell, Greeneville, and N. L. Wingo, Jackson, Miss.

There is a large field in the South for Association work, and, with the list of officers above mentioned, there is every indication that it will be cultivated. The Southern Tri-State Photographers' Association may be assured of the hearty interest of the older State Associations. Its work will be looked for with interest by all.

THE Nebraska Photographers' Association will hold its Fifteenth Annual Convention, May 11th, 12th and 13th, at Lincoln, Neb. The Committee in charge of the Convention has made excellent progress, and offers a programme at once interesting and instructive. A comprehensive prize list is announced, and it is also stated that awards will be made by judges chosen from other States. This method was adopted last year and met with general approval. Further details may be had by addressing E. R. TYSON, Secretary, 1215 Farnam St., Omaha, Neb.

WE are in receipt of a prospectus of the California College of Photography, located at Palo Alto, Cal., announcing a special course of photographic instruction for the amateur. This course is based upon correspondence entirely, and the argument set forth in the very attractive pamphlet announcing the school is well prepared.

THE latest addition to the Faculty of the new Bissell College of Photo-engraving of the Illinois College of Photography is Mr. Dudley K. Ladd, of New York, on expert photo-engraver with years of experience in the various departments. Among other things, Prof. Ladd is proficient in three-color work, and will give much additional strength to the corps of instructors.

The catalogue of the Bissell College of Photo-engraving has been received from the printers and is now ready for distribution.

By the Otto Sarony Co., New York

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. MAY, 1904. No. 569.

THE PREPARATION OF WATER DEVELOPMENT PLATINUM PAPERS.

BY A. J. JARMAN.*

PRINTS upon paper where platinum forms the main body of the image are obtained in several ways. The original plan was to develop the image upon, or more correctly by, immersion in a hot solution of neutral potassium oxalate. Beautiful prints were obtained by this method, but the use of a solution at 180° F. proved to be a great drawback to its general adoption. The introduction of cold development for the production of prints in platinum in 1892 proved a great step in advance. The subject to be dealt with here is the preparation of platinum paper that requires no special developing solution, the only requirement after printing the image being to submit the print to moisture, or to immerse it in water for complete development, or it may be held in the steam issuing from a tea-kettle, or placed in a damp box for several hours, at the end of which time development will be complete. The easiest and quickest process is to simply dip the print into plain water, when the development can be easily watched and stopped at the right moment. One of the principal and most important salts used in the preparation of any kind of platinum paper is ferric oxalate. Although this salt can be purchased for twenty-five cents per ounce, it may be advisable in some instances to prepare it. This can be done with ease and certainty in the following way: Take one pound of chemically pure perchloride of iron (sometimes called sesquichloride of iron), place it in a two-gallon clean stoneware crock, pour upon it a gallon and a half of *boiling* water, stir with a strip of glass until dissolved, then pour into this hot mixture (stirring well at the same time) one pound of stronger water ammonia. The stirring must be done rapidly. The solution will quickly begin to thicken, and will closely resemble coffee grounds. Just as soon as the mixture thickens heavily the addition of ammonia should be stopped and the crock stood aside for the precipitate to settle. This precipitate is nothing more or less than pure iron rust, known chemically as hydrated peroxide of iron. As soon as the precipitate has settled well the clear liquid must be decanted off. This clear liquid is a solution of ammonium chloride. Fill the crock again with clean cold water, stir the contents well, and allow to settle again. When settled, decant once more. Continue this operation until the washing is complete, which may be ascertained by adding a few drops of nitrate of silver solution to a small quantity of the clear decanted liquid. As soon as no opalescent effect is produced the precipitate of pure oxide of iron is ready for use. It must now be poured into a large glass funnel, with a strong filter-paper inserted, or, better still, use two filter-papers, with a small tuft of absorbent cotton pulled out like a cobweb,

* Several prints submitted by the writer of this article, and made under the formula advised, show a beautiful range of color and brilliancy, and clearly demonstrate the value of the process so far as results are concerned.—[ED. W. P. M.]

placed at the apex of the filter paper. When fitted into the funnel this cotton will prevent the paper from splitting at the point of greatest pressure. About ten ounces of distilled water should be added after the first filtering is completed, so as to wash out the ordinary water. The washing being now complete, dissolve half a pound of c. p. oxalic acid in one pint of boiling distilled water in a stoneware crock, take out the oxide of iron from the funnel with a glass strip, and place it into the hot solution of oxalic acid. Continue this until the whole of the contents of the funnel has been transferred to the crock. Stir well. If the oxalic acid has not all dissolved, it will not matter, because there will be a considerable quantity of water held by the oxide of iron, which will be more than enough to dissolve any excess of acid. When this mixing takes place it should be done under no stronger light than a gas jet or an oil lamp, because the salt which is forming, namely, the ferric oxalate, is extremely sensitive to light. In fact, the whole of the operation in preparing this salt of iron, from the time the oxide and oxalic acid are brought together, must be conducted away from any actinic light. The mixture must be stirred two or three times a day for about four days, when it will be found that nearly the whole of the oxide has been dissolved. The liquid that is left will be found upon decanting to be of a brownish-green color, and when tested by the hydrometer will indicate 60 or 70 on the scale; this means 60 or 70 grains of pure ferric oxalate to the ounce of liquid. This is the ferric salt that is required for the preparation of the paper. It must be fully understood that the operations from this time on must be carried out under a yellow light. Ferric oxalate solution will be found to clear better by settlement than by filtering. It must not be evaporated down to a solid, because the excess of heat for this operation would injure the salt and produce ferrous oxalate. It is this body that must be avoided if it is desired to produce a perfectly coated paper. The ferric oxalate being ready, proceed as follows: Procure the necessary number of sheets of paper to be coated (suitable paper can be obtained from any large photographic stock dealer). It must be *plain* paper, not salted. Sheets about 18 by 22 inches can be bought for 50 cents per dozen; sizing of the paper previous to coating is not necessary. Now make up the following stock solutions, using distilled water only:

Gum Arabic (white)	1 ounce.
Dissolved in Hot Water	3 ounces.
Chloroplatinite of Potassium	½ ounce.
Water	6 ounces.
Oxalic Acid, Chemically Pure, saturated solution.	
Oxalate of Potash, saturated solution.	
Lactic Acid	4 ounces.
Potassium Chlorate	60 grains.
Hot Water	5 ounces.
Nitrate of Lead	240 grains.
Hot Water	4 ounces.
Ferric Chlorate (Chlorate of Iron)	2½ ounces.

Ferric chlorate for use in the preparation of this paper is made up as follows: Take two ounces of ferric oxalate solution and add thereto 4 drams by measure of the potassium chlorate solution above given. All the bottles used for this work must be amber-colored glass, except for the gum arabic, so as to insure safety from action of light.

A drying box or closet will be required, a small cupboard in a room will answer, or a moderate size packing case may be used. If a cupboard is to be utilized several lengths of copper wire must be stretched from side to side, attached to screw-eyes, the same kind as used for picture frames. Allow space enough for the bottom of the sheets of paper to hang about eighteen inches above the top of a small gas stove placed upon the floor, beneath which a sheet of tinplate has been placed for safety. Upon the top of the gas stove place another piece of clean tinplate about a foot square. This is to distribute the heat. The products of combustion will not affect the paper, if it is not to be kept too long before use, say for a month. If a packing case is to be used, then a few one-inch holes must be bored in the top to allow the air to circulate and take the moisture from the paper. A small gas stove must be used in the same manner as described for the cupboard, of course, allowing sufficient space between the heated sheet of tin and the bottom of the sheets of paper, so that they do not

become scorched. Having the drying closet ready and a few dozen wooden photographic clips at hand, proceed as follows: Procure an amber-colored glass tray, say 8 x 10 inches, and cut the paper into strips 9 inches or 9½ inches wide. Cut some strips of thick cardboard half an inch wide and 9 inches long, or strips of glass will answer better. Two dozen of these will be required for twelve strips of paper. The paper must be examined, and a mark made upon the back with a lead pencil so as to indicate the right side to coat. Now place a glass strip at one end of the paper upon the back, and clip it with three wooden clips, one at each end and one in the centre, reverse the paper and attach another glass strip in the same manner to the other end. Continue this until the twelve pieces of paper are complete and lying on top of each other ready for coating. The sensitizing solution is to be made up in the following manner:

Ferric Oxalate Solution (fluid measure)	4 ounces.
Ferric Chlorate	3 drams.
Chloroplatinite of Potassium Solution	3 ounces.
Nitrate of Lead Solution	3 drams.
Potassium Oxalate Solution	4 drams.
Oxalic Acid Solution	2 drams.
Lactic Acid	10 drops.
Gum Arabic Solution	1 dram.

These may be mixed in an ordinary amber-colored wine bottle, corked with a clean cork, and shaken up well, then filtered through absorbent cotton placed lightly in the neck of a glass funnel into a sixteen-ounce wide-mouth amber glass bottle. This is the sensitizing solution. Pour this into the glass tray, take one of the clipped sheets of paper, holding the ends with each hand, bend the paper into shape like the letter U, bring one end down upon the surface of the liquid, then, by gently raising one hand and lowering the other, the paper will glide smoothly upon the surface of the sensitizing solution and become coated as perfectly as if coated by a machine. Repeat this operation two or three times, hold up the sheet of paper cornerwise so that any excess of liquid may drain into the tray, and allow one corner of the paper to touch the inner edge of the tray. The paper must now be suspended in the heated closet to dry. Coat the other sheets of paper in the same manner. When all are dried they must be removed and laid aside, away from light, for a short time to cool. They must then be coated again upon the same solution and suspended to dry in the reverse position; this is to equalize the coating. A sheet or two of blotting paper may be placed at the bottom of the closet to absorb any liquid that may drop, or a strip of blotting paper may be clipped at the bottom of the sheet of paper to prevent the liquid from falling.

As soon as the second coating is dry remove the clips and glass strips, trim the ends by cutting off that part held by the clip. The paper is now ready for use. Any sensitizing solution that remains may be laid aside and can be added to some fresh solution, if used within a week; if not, it must be thrown into the waste crock kept for saving platinum waste.

Having a suitable negative ready, cut the paper to the required size, say a 5 x 7 view, place it in the printing frame, and expose if possible to sunlight. Print the image well in. When printed remove from the printing frame and immerse immediately in a tray of warm water. Almost instantly the image will develop to full intensity. It must now be placed in a clearing bath of muriatic acid, 1 part to water 50 parts. In a short time the image will clear up, and a rich warm black print upon a white ground will be the result. Two or three such clearing solutions should be used to insure the complete elimination of the iron salts. The print should now be well washed and dried, ready for trimming and mounting.

The paper that may be left over may be packed in an ordinary tin case, such as is used for platinum paper, with a thoroughly dried pellet of chloride of calcium wrapped in several folds of cheese-cloth and paper, and either sealed or tied with string.

It will be found that this paper will print much better after being kept a short time. Should the paper become at all damp the image will become well printed out when exposed in the printing frame. In the process of drying the paper do not use galvanized iron upon the gas stove, or spots upon the coated paper will result from the minute specks of zinc carried off by the heat.

Paper for giving brilliant prints from weak or thin negatives can be made by this process by adding double the quantity of ferric chlorate to the sensitizing solution and printing in very deeply.

To ascertain the best quality of paper for use it would be a good plan to test a few pieces before coating the larger sizes, and the ordinary plain photographic papers may always be depended upon to produce reliable and satisfactory results. Papers that have a slightly rough surface produce the best results.

In preparing paper for water development it must be clearly understood that any and every kind of paper cannot be used. Some white papers contain a considerable quantity of kaolin and other earthy matters, while others contain the residues of the chemicals used in the bleaching process. All these bodies interfere with the deposition of the platinum contained in the sensitizer. Sulphate of baryta where employed as a coating upon any kind of paper will prevent perfect deposition of platinum. The deposited metal will be extremely small in quantity, consequently the image will be poor in quality, the color being at all times a bluish or bluish brown.

The organic properties of the paper itself have much to do with the chemical action which causes the deposit of platinum.

Other salts can be used in combination with ferric oxalate as a sensitizer for water-developed platinum paper, such as sodium ferric oxalate and ammonium ferric oxalate, but in either case the image has a very weak appearance upon development, particularly with the last named salt, which will produce upon some papers a gray mottled appearance. It must also be understood that whatever kind of drying closet may be used it will be necessary to provide a proper inlet for the air. Also to take every precaution for the prevention of dust entering the drying closet.

The process of double coating may be facilitated by hanging the sheets of paper after the first coating and drying in a moderate sized box or closet, the bottom of which has a sheet or two of blotting paper wetted with warm water, the coated sheets of paper being hung upon stretched wires, the same as in the drying closet. About fifteen or twenty minutes in this closet will allow the paper to absorb just enough moisture to permit of its being bent and recoated with freedom. It is not intended to make the paper damp or wet, but to allow it to absorb enough moisture to make it pliable. By this means the second coating may be effected with ease and without allowing the sensitizer to flow over the back of the paper.

The addition of the gum solution to the sensitizer enables the coating to be accomplished without previous sizing of the paper. The extra sizing of the paper has caused many failures in preparing paper for one's own use, rendering the paper more absorbent than if it had not been sized. This may appear strange, but it is nevertheless a fact. The paper should be passed through a calendering machine after sizing, to close the pores and thus give a suitable surface that is practically non-absorbent, no matter whether the surface is smooth or rough. These remarks have been made to prevent disappointment and to aid in producing a perfect paper without going into a course of experiments. This small percentage of gum enables paper to be used such as Whatman's. The only point to be attended to when Whatman's paper is to be sensitized is to reduce the quantity of ferric chlorate solution to a fourth of that used in the formula given, otherwise the paper will give prints possessing great contrasts. The printing upon Whatman's paper will require double or treble the time that would be required for printing upon smooth paper. The process of clearing or fixing must also be continued longer than with smooth paper. If this is not attended to a considerable portion of the ferric salt will remain in the paper, and will soon cause a very decided yellowing of the white parts of the picture.

If muriatic acid is not on hand a solution of oxalic acid may be used, one ounce of oxalic acid to thirty ounces of water, using three separate baths. Should oxalic acid be used the hands must be washed in lime water to obviate risk of oxalate poisoning. A solution of muriatic acid (hydrochloric acid) is the best clearing agent for pictures made upon the paper described for water development.

LIGHTING.

BY FELIX RAYMER.

FOR the past forty or more years various ideas have been advanced by various workers for the lighting of the face as we see it under the light, and personally I have not the slightest doubt but that all claims made have been "founded on fact," so to speak. In other words, every worker is a "law unto himself," and manipulates his light to suit himself. But there can be no question that there must be a right and a wrong way of lighting. Now the next question for consideration would naturally be: What is the right and what is the wrong way? The answers to these two questions are so obscure or hard to arrive at that the average worker almost hesitates to go any further in his investigations. One great, and perhaps the greatest reason for his hesitation lies in the fact that we, as photographers, cannot, with any degree of positiveness, point to any particular name or person as being a recognized authority. Why? Perhaps the reason may be found in the fact that we are young in years as a profession, many of our earliest followers yet living, and it is a historical fact that the benefit of one's knowledge and efforts are seldom reaped until after one has passed over the "great divide." With the artist, or the follower of Rembrandt, Rubens, Turner, Murillo, Michael Angelo, and perhaps scores of of others, it is different. For ages past their ideas and in many instances their advice and their instructions have been handed down to their successors until it has almost become a sacred matter to those receiving them. We, as photographers, dealers in "*light* and *shade*," have and are now "worshipers afar off," trying with our meagre possibilities to gain a little instruction from these selected few. It is an old and tiresome saying that we are hampered by not having "color" to aid us in our endeavors. This saying, like most old sayings, is true, and we must sooner or later realize it. As soon as we have reached this station in our professional career the next consideration is, how am I to make work that will be classed as artistic? To this question there can be but one answer, and that is, by so controlling your lights as to secure artistic effects in black and white, the only means at our disposal for producing pictures up to the present time.

In my personal experience under the light, which has extended over twenty-one years, and in handling all classes of subjects, I have found that there is one main consideration to be taken into account in producing artistic work, and that is the direction from which the light falls on the subject. There are other considerations of a minor importance which will doubtless enter into the lighting of the face, but they are in no wise to be compared to this one of "*direction.*"

It has been my privilege within the past few years to attend a large majority of the State and national conventions, where I have heard the various claims made, and seen the demonstrators work the light in their own way, and I have found that in *all* cases their first thought was for the direction of the light as it fell on the subject. One man would claim that he used as large a source of light as he could possibly get; in other words, he used no curtains of any description on his light. But I noticed when he demonstrated his method of work he would have his subject posed at least as far from his side light as his top light would measure upward from where it joined with the side light. For example: If we are using a light, the top light of which measures twelve feet from the side light up to its highest point, and we pose the subject twelve feet into the room, measuring from the lower end of the side light, all that will then be necessary is to lower the curtain (if curtains are used) on the side light just enough (no more) to secure a catch light in the eye (or *speck*, as the public calls it) this light is thus obtained, provided, of course, that the head has not been turned so far away from the light that no light at all strikes the shadow side of the face. In this connection I would say that as soon as there appears a soft light on the shadow cheek, which will be due to the face being turned

far enough to the light to catch it, if the light from the side is low enough the catch light will appear. If no curtains are used on the light there will be no question on this point, as the catch light will show itself just at the instant the face is turned far enough to the light to show the soft light on the shadow cheek.

Now, someone (or more, perhaps,) will think, "Yes, this may be good under a double slant light, but I have no single slant; what will I do?" Do just as that brother did who was using the double slant. Have a certain portion of your light top light, and the other portion will be side light, and for all practical purposes it will be found to work the same. If, for example, the upper half of your light is, say ten feet, the subject should be faced ten feet into the room from the light.

At this stage of the game we run up against another point of lighting that has often been mistaken for a principle of lighting, and that is, the question of the *strength* of the light as it rests on the subject. That is, whether it be strong, bordering on contrast, or soft or delicate. This, to my mind, is *not* a principle, but merely a personal preference, and is to be determined by each operator for himself. Over and over we see pictures by men of national reputation, one making strong, bold lighting, the other soft, delicate, and full of detail, but upon a close examination we find the light falling upon the subject from the same direction, viz.: half way from the highest point in the opening of the light and its lowest point, or, as it is known to the average worker, an angle of forty-five degrees. As to the size of the opening, that has, in my opinion, nothing to do with the resulting negative other than the consideration of whether it shall be a negative strong in contrast or one of soft, delicate quality—the smaller the source of light the more concentrated it will be at certain parts of the face—forming high lights, and accentuating those parts, while the half-tones and shadows are held down to their proper weight. The larger the source of light the softer the effect, and the less we notice any one or more parts of the composition being of greater importance as compared to other parts.

Now we come to the operator who uses curtains or screens on his light, and I find by close observation that he differs but little from his brother who uses no curtains. In working his lightings he is governed by that most important of all considerations, the "direction" of his light, and after he has completed his lighting, and we examine it closely, we find that he has made but one difference, namely, in the *size* of his light, he having curtained it down until it is much smaller, but at the same time he has moved the subject nearer to it, making, perhaps, a stronger or more bold effect, which was merely his own taste, judgment, preference, interpretation, of the requirements of the subject, call it what you may.

So we can arrive at but one conclusion, and that is, we must work for the *principle* of the light and not for the *method* of obtaining it. 'Tis but folly for any one man to claim he has the "only way for lighting the face." There is no such thing as "a way," but "the thing" is to know the *principle* of it, and what matters "the way." It is just here so many of us have misunderstood our artist friends in their lectures at the conventions. They have undertaken to tell us the *principles*, and we cried out for "a way." The *way* must rest with each individual, and as soon as that individual has found the *way* he establishes his own individuality, and that individuality belongs to him and no other, but it must be founded upon the *principles* governing his work. What are the principles? That is too long a story. Perhaps at some future time I may try and tell of them as I understand them. But, as stated before, the "direction" of the light as it falls toward the subject is the *first*.

English Photography at the World's Fair. It is currently reported in the British protographic press that Sir William Abney is expected to represent British Scientific Photography at the coming Expositon in St. Louis, and that a very considerable and most interesting collection of photographic scientific work has been organized under the direction of the Royal Photographic Society.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

IX. THE PERSONAL LETTER. STATIONERY, AND HOW TO USE IT.

CONSIDERATION of the form-letter and of the follow-up system, touched upon in the last two articles of this series brings us naturally to the matter of stationery provided for the studio and some of the uses to which it may profitably be put. An experience of many years, during which time the writer has been in constant and frequent correspondence with photographers throughout the country, leads him to think that far too little attention is paid by the average worker to the importance of good stationery and its proper use in correspondence. It is an indisputable fact that every letter issuing from the photographic studio is an advertisement of the studio and has a distinct bearing upon the quality of work to be expected from it. A letter received by the patron of any given studio, well written upon paper of good quality, well printed, chaste, and dignified in its tone and make up, goes far to induce a feeling of confidence in the ability, skill, and business conduct of the studio. An impression almost unconsciously obtains that an order will be safely placed and well executed at the hands of him from whom the letter emanates. There is much good to be derived from a first impression, if it is of the right sort. There is a curious psychological tendency in the minds of most people to be influenced by a well-written and attractive letter. Failure to apreciate this fact is oftentimes the secret of non-success in many business lines.

The measure of a man's ability in any field of endeavor bears a distinct relation to his knowledge of the subject with which he treats. It, therefore, follows that the strongest, ablest man in any profession or employment must be, at least in theory, the most learned man in his own particular line of usefulness. In theory, this is doubtless true, but in practice seldom is the case; and the artist who knows how to produce the most beautiful paintings dies in poverty because his knowledge is too centralized. He is only trained along one single line. The critic who can tell us all about correct grammatical construction, the relation of subordinate sentences to the main idea of a novel, fails utterly when he himself tries to apply his knowledge to the profitable production of a book of his own. In these cases and in many others the power of knowledge is present but centralized about too small a point. The worker fails in applying to his expert knowledge of the subject the practical, everyday business conditions that must attach to it and form a part of it before it can have a practical value. The parallel holds good in our own profession, and it is not the man possessed of the highest artistic taste or even of the best technical skill in the art of photography who makes it pay. It is, in fact, more frequently the other way. He who executes the most perfect technical work and who puts into his photographic creations the greatest amount of truly artistic touch and feeling is most often he who, if left to himself, will wholly fail in his effort to build up a paying business. If we are to look for the highest power obtainable by the acquisition of knowledge in our own business, it must be sought in a combination of the artistic and technical attributes of photography with that keen business sense and understanding of conditions that alone give to them a marketable value. Knowledge, therefore, must be broad and comprehensive if it is to be powerful in the sense of being profitable to the photogapher. It must deal not only with the methods of producing good photographs, but equally with a means of creating for them a demand and finding for them a market. The writer believes that the personal letter if constructed on right lines offers the very best means of accomplishing this end. It is not possible, of course, for every photographer to carry out this suggestion in its entirety, but I am firmly convinced that it is possible to a far greater extent than ever yet demonstrated. There are certain elementary principles that will apply in all cases; the stationery must be of good quality and the style of correspondence must be consistent with the local con-

ditions that govern it. There are certain among the leading photographers of this country and abroad who realize this and affect a style in their stationery and correspondence just as much as in the portraits issuing from their studios.

For example, a letter from the studio of J. C. Strauss, of St. Louis, bears the impress of individuality upon the outside of the envelope, even before the seal is broken. The letter itself is as characteristic of Mr. Strauss as is his portraiture. It carries the personality of the man to the person he addresses and leaves its stamp upon the mind. There is a peculiar something about it, nowhere else to be found. The same may be said regarding the stationery and style employed in other leading studios. Each differs in some essential from its neighbor, but the one noticeable characteristic of good taste marks the stationery of every one, and each bears the characteristic imprint of its writer. Such letters constitute the highest type of advertising. They represent the best effort of the photographer toward securing the attention, interest, and business of a selected class of buyers whom he especially desires as customers. There is room for more of this special kind of studio publicity. The average photographer ought to be in closer touch with the people of his community than he is to-day.

He should feel at liberty to write, and Mrs. Smith should feel complimented to receive such a letter as the following or others on similar lines:

MRS. JOHN SMITH,

DEAR MADAM: Referring to your sitting in December last, and the three-quarter figure from which you did not order, I have suspected that the background was largely at fault. Since making that sitting I have procured several new grounds which I think you will like. I have a few specially good specimen prints in which they appear that I would like very much to have you see. May I send them to you for examination, or will you kindly call and see them when next in the vicinity? I am very desirous of making a re-sitting of this particular pose.

Yours truly,

Good stationery does not, of necessity, mean expensive stationery. The writer has seen specimens of the most expensive kind which were not in good taste, and which were, therefore, not to be classed as good stationery. Simplicity in selection of paper and envelopes and in the matter printed upon them is, as in portraiture, one of the main essentials to satisfactory results. The size and style of letter-sheet have little to do with the question, always provided that the matter of the printed heading is so arranged as to make a proper showing upon its surface. There is, in the writer's opinion, nothing richer or more tasteful than a plain, embossed heading, with a few short lines carrying name, business, and a comprehensive legend in the left hand corner of the sheet, with the date line at the right. If the embossing is impracticable, the same matter neatly printed in a plain type and in black ink comes next. Anything in the way of ornate display with borders, panels, and the like, seems out of place, while the groupings into a few short paragraphs of all that is to be said about the business concentrates the interest of the reader rather than spreading it over a multiplicity of ideas.

Is there not a good field for the use of good stationery which the average photographer too often neglects? Is it not true that too little attention is paid to keeping one's patrons in touch with the new products of the studio and in constant remembrance of the fact that it exists? Some of our most successful men to-day are thus keeping themselves in the minds of their patrons by frequent writing of personal letters. The special attention of Mrs. Blank is requested to a new effect in printing, a new style in mounts, or to the production of some special subject which the photographer asks her personally to inspect. The same course is pursued with reference to many other lines of special suggestion. The progressive man in the larger city keeps in touch with buyers from remote sections of the country, knows all the hotel arrivals and the persons of note visiting the city at all times. The same course is followed by the leading men at summer resorts. A personal letter is in many cases the only means of bringing himself to their notice, and knowing this, he uses it, in many cases to advantage. Why do not more follow his example? Some, perhaps, because they do not feel equal to the composition and arrangement of such a personal letter. Their training has been on

lines photographic rather than of letter writing, and they shrink from what, to them, is a serious task. They know, however, that once the sitter is in the studio they possess the power to make a creditable series of photographs. They hold up their hands at the thought of a personal letter, and the sitter does not come. It is a mistake to allow such a notion as this to interfere with the plan of letter-writing. There are other ways in which it can be done. The reception-room attendant or some specially paid assistant may be easily trained into doing work of this kind, or a stenographer may be employed for a given time each day or week to follow up and carry out the work. The output of a successful studio must, however, like a well dressed man, be clothed with an air of respectability throughout and every trace of shabbiness carefully avoided. Good stationery carries on its face the evidence of refinement, good taste, and artistic instinct. It often serves as an entering wedge by which new business is created. Poor stationery and a carelessly written letter equally suggest the other extreme, and have disastrous effects.

Form-letters can be prepared to cover almost every practical use in any studio, if the personal letter is impossible. Where the proprietor is too busy with his studio work, or otherwise unable to devote his personal attention to the writing of personal letters, a series of such form-letters may be substituted and ought constantly to be on hand. They may be made to deal with the ordinary work of the studio, or with special lines. Their cost is nominal and the output profitable, but the personal letter fills a gap that nothing else approaches.

A POST-CARD SUGGESTION.

BY W. E. W.

I HAD an hour to spare in a tiny country village, one of those places which has two trains up and two trains down daily except Sunday. It was within thirty miles of London, but might well have been five hundred miles away. There was no village proper, a few scattered farms, a few laborers' cottages, and a fair sprinkling of "gentry" houses were all that could be seen. There was no main street; not even a cluster of houses around a store.

Half hidden in a clump of roses, standing before a tiny, cozy cottage, I read a shingle—you don't often see shingles in this country—it read: ERNEST ARTHUR, ARTIST PHOTOGRAPHER. Probably the cottage rented at seventy-five cents to one dollar a week; but I wondered how, even at that rate, photography could exist in such a scattered place. I hunted out Mr. Arthur, and found him plump and prosperous. Seventeen years in this corner of the earth! Yes, he had a studio—a glass "greenhouse" some ten feet square—but he usually took pictures in the garden. He proceeded to tell me how he did it, but suddenly broke short in his narrative —"look 'ere, I've never had a showcase yet, but I'm going to have one now, and I'm going to make money." He turned to a bureau and brought out a handful of picture-postal cards! There were a dozen views of a fine house and of the gardens surrounding it. "This is Colonel Fitz-Hardinge's place; I get three shillings a dozen for them, and he has ordered twelve dozen. All the gentry are getting post-cards from me; and I'm going to make a showcase and fill it chock-full. There's money in these things; more than in portraits."

I left him and caught my train.

A few days later I stayed at a quiet country inn. It was in a village where no tourists ever came, or so I supposed. But as I was in my room there came a knock at the door, and the chambermaid entered. Rather bashfully she brought an envelope from under her apron—picture post-cards! The village was immortalized in a set of seven, and I paid sixpence to the delighted girl. Later, as the landlady brought in my tea she brought also a set of picture post-cards, and with many apologies introduced them to my notice. I proved an easy mark, and bang went an-

other sixpence. Later, I strolled down the village, and at the postoffice, with a "begging your pardon, sir!" the letter-carrier got yet another sixpence. When I arrived home I found a picture post-card among my mail. On it was written, "This is where I'm staying; send me some post-cards." The postal-card craze is a great institution. It has put thousands of pounds into the pockets of British photographers.

THE VAGARIES OF PRINTING-OUT PAPERS.

BY R. E. BLAKE SMITH.

THERE is no part of photographic manipulation which presents such great difficulties to the average photographer, and about which so much confusion of thought and conflict of statement have arisen as the gold toning of P. O. P. The chief reason for all this is that the condition of the paper varies so greatly that general statements are not of much value in any case, and are often very misleading. There are two kinds of variation in the condition of P. O. P. which are quite separate, and must be clearly recognized as being separate if a proper view of the toning process is to be obtained.

The well-known "yellowing" which takes place when the paper is kept in a damp atmosphere will be here considered first.

The "yellowing" is caused by the soluble silver compounds contained in the emulsion acting in conjunction with water taken up from the air on the paper and gelatine. If this action proceeds evenly over the whole surface of the paper, it may happen that no harm will be done. Slight "yellowing" will be cleared off in the subsequent fixing. The "yellowing" may, however, reach a stage when this is not possible, and so discoloration will arise. The "yellowing" will at times with some baths be the cause of a promiscuous deposit of gold all over the print, which will again bring about a discoloration. Naturally, the discoloration in either case, although general, is chiefly apparent in the whites.

But there is a still more important objection to be urged against paper even very slightly deteriorated by the action of moist air. The deterioration affects the velocity of the toning action, and so if the deterioration is uneven, the toning will be uneven. The velocity of the action of certain toning baths is more affected than others, and, so with badly preserved paper, some baths give greater unevenness of tone than others. With some baths, when only slight deterioration has taken place, unevenness of tone will very likely not be noticed.

Well, now, when deterioration occurs, does it generally take place unevenly?

Unfortunately, yes. Only, as above noticed, when certain baths are used and the deterioration is not great, the unevenness may not lead to disastrous results in toning.

The unevenness is very easily accounted for, and is, in fact, only what would be expected.

P. O. P. is commonly bought in packages of separate pieces cut to the proper size required. These pieces lie together like a pack of cards, and so the gelatine film on the pieces of paper is always more or less in contact with something else—either another film or a piece of paper. The paper not being perfectly rigid and flat, the contact is not perfectly even. Now we know that when an exterior reagent acts on a film of emulsion—the film being more or less touched at different places by some third body—the chemical action which takes place will be uneven. This is owing to the fact that access of the reagent to the emulsion is more easy at some places than at others. In the case under consideration the reagent is, of course, the moisture of the air. A similar reason, as is well-known, makes the continual movement of the prints in the toning bath a necessity.

"Double toning," *i. e.*, the lighter parts of the print toning to a bluer color than the darker, must be carefully differ-

entiated from the unevenness of tone just considered. "Double toning" will be referred to later, but it is well at once to emphasize the fact that it has no necessary connection with the deterioration of the emulsion due to the paper being kept in a moist atmosphere.

The unevenness of tone at present under discussion occurs in blotches promiscuously all over the print, and is not affected by differences in the light values of the picture.

In an article in *Photography*, May 2d, 1903, page 427, I urged that the only really satisfactory way of storing P. O. P. was to keep it in a desiccator, and I further wrote that "some brands of paper are possessed of such poor keeping qualities that it is generally impossible to buy them in good condition from the retailers." Even with the brands which keep in good condition for the longest time, viz., those containing the least amount of soluble silver compounds, the climate will often play havoc.

An instructive experiment on the subject under discussion can be carried out in the following way:

Take a large box and put into it a dish of water and then some pieces of P. O. P. Let some of the P. O. P. rest on the bottom of the box, film upward, each piece being separated from the rest, with nothing touching its film, and let the remaining pieces of paper be packed together and put into an ordinary correspondence envelope. After, say, three weeks, test the condition of the paper by carrying out printing and toning operations with it, noting the difference, if any, between the behavior of the separated pieces and those contained in the envelopes. The results will be found to bear out what I have stated above.

The second variation in the state of P. O. P. is one the cause of which is not known. It is a very subtle and evasive variation, and as far as I know there are no means of entirely getting over the difficulties to which it gives rise. These difficulties can be mitigated, however.

Anyone who has used P. O. P. to a considerable extent must have become aware that even when it has been carefully preserved in a desiccator, and is in apparently first-rate condition, the toning properties are by no means certain and invariable. It is not, of course, meant that the different pieces in the same sample behave differently in toning, nor is it meant that *every* sample yields prints having different toning properties. What is meant is that the toning properties of many samples are markedly different from some others of the same brand.

Before considering this matter further, it is perhaps best to consider *upon what the color of a tone print depends*. Toning consists of replacing some of the silver in the photo-compound, of which the image consists, with gold. The color of the deposited gold depends upon the size of the particles forming the deposit, varying from red, through different shades of purple, to blue as the size increases. The color of the image finally obtained on the *dried* print depends either on the color of the deposited gold or on the color of the deposited gold combined with the color of silver deposit, as the case may be.

The color of the silver is a nasty yellowish brown, which is very hideous and unpleasing. Combined with blue gold it does not give either purple or "photo-brown," as I have seen stated. It gives a cold brown tone, which varies in tint according to the amount of gold. Practically speaking, no "warmth" can come from a silver deposit—it must come entirely from the gold. Hence, when warm tones are desired, we must get the gold deposited in a sufficient red form. Purple gold deposited on the brown silver gives tones which vary from various shades of "photo-brown" to pure purple. The pure purple is produced when sufficient gold is deposited to prevent any brown showing through from the silver when the print is dry. By "photo-brown" is meant brown with various tints of purple pervading it to a more or less degree.

A purely red deposit of gold gives tones varying from a reddish brown to a pure rich red, the latter being produced when no brown shows through the gold at all.

Now with some samples of paper we can get, using an ordinary sulphocyanide bath, a beautiful rich purple tone. Other samples, and more common ones, will give us various shades of photo-brown, which, if

more gold is allowed to deposit, will only be converted into a very cold and bluish purple. Others—and from my own experience, I should say this is the largest class—will give us only cold brown tones. With paper in this latter condition, the use of certain baths, *and especially the sulphocyanide*, introduces us to *a highly objectionable phenomenon* — "*Double-toning.*" When the deposit of gold is entirely, or almost entirely, of a blue nature, it may happen that practically all the silver of the lighter parts of the image is replaced by gold before sufficient gold is deposited on the darker parts to give a good brown tone, and in this case the lighter parts will come out more or less blue while the darker are a yellowish brown Some baths are not nearly so liable to give "double-toning" as others.

The actual state of things during toning appears to be as follows: The solution of gold diffuses into the film, and in some places it finds many particles of silver photo-compound, in others it finds comparatively few. Now, of course, the velocity of any particular chemical reaction varies as the product of the reacting masses. Here there are two interacting substances—a compound of gold and a compound of silver.

Suppose the amount of gold acting in all parts of the film at the commencement of the toning action is "*g*," and let us have in one part of the film an amount of silver "*s*" and in another an amount "*2s*," the velocity of the toning action will be proportioned to "*2gs*" in one part and to "*gs*" in another. It will be twice as fast in the former part as in the latter. The more intense action in the darker parts will reduce the gold concentration in these parts more than in the lighter ones. But, if now "*g*" in the product "*2gs*" is reduced more than "*g*" in the product "*gs*," it is obvious that the toning action will no longer be twice as fast in the one place as in the other, and so unevenness of color will take place unless the already coated particles are protected by their covering of gold. A gold covering must have some influence, but when the difference of concentration in two places is great it may not have sufficient.

Of course, if the silver compound was not in a gelatine or other film, so that the gold solution had perfectly free access, and the concentration could be kept the same at all points of contact with the silver, no unevenness of color would occur. It must be clearly understood that the actual velocity of the toning action—the quantity of gold deposited in unit time—and the progress of coloration are not the same thing. In order to get evenness of coloration we must have unevenness of toning action—we must have *more* gold deposited in the same time in the darker than in the lighter parts of the image.

It seems that the conditions for "double toning" do not depend upon the ratio of the velocity of the actual deposition of gold, when the gold and silver compounds are in contact, to the velocity of diffusion of the gold compound through the gelatine film. If the diffusion velocity is great relatively to the velocity of the interaction between gold and silver compounds, the reduction of gold concentration in the darker parts of the image is quickly made up, but in the reverse case it is not. In the case of some baths under some conditions, *e. g.*, the sulphocyanide bath depositing blue gold, the velocity of interaction between the double sulphocyanide of gold and ammonium and the silver photo-compound would seem to be very rapid relatively to the rate of diffusion of the double sulphocyanide of gold and ammonium through the gelatine film.

The visible progress of toning depends both on the velocity of diffusion of the toning solution through the gelatine film and on the actual velocity of gold deposition when the gold and silver compounds have come together. In the case where one of these velocities is much less than the other, the visible process will depend almost entirely, if not entirely, on the slower velocity.

I have already mentioned that a covering of gold must, and does, protect the already coated particles of silver photo-compound from further action to some extent, and it may be also that with some baths a coating of gold protects the silver more adequately from further toning action than with others. This is quite a probable explanation, but, all the same, I do not think there is much in it.

Let us consider the case of the Ilford Company's Kalona paper. This paper is a brand of P.O.P. containing gold in the emulsion. It is toned by immersion in a bath of ammonium sulphocyanide and alum. Most of the samples of this paper which I have tried have yielded various shades of photo-brown; one sample yielded almost a rich purple. With such tones one would not expect much, if any, "double toning," and, as a matter of fact, none occurred. However, one sample gave quite a cold brown tone. The color was a good one, and no "double toning" was to be observed. Here, then, it seems a blue deposit of gold from a sulphocyanide toning bath was unaccompanied by "double toning."

The explanation can be given upon the diffusion theory before enunciated. The gold is present mixed up with the silver compound in the emulsion; when the ammonium sulphocyanide enters the film it dissolves the gold, and some then tones the print. There is, of course, set up a difference in gold concentration in the lighter and darker parts, but in this case there is never anything like the difference between the gold concentration in the different parts of the print as in the case of ordinary P. O. P. Since the gold is in the emulsion, there is never at any time during toning the shortage of gold which appears to take place under certain circumstances in the darker parts of a print on ordinary P. O. P. The difference in gold concentration in two places of a Kalona print never appears to be sufficient to overcome the protection afforded to the lighter parts by their previous coating of gold.

The fact that a dilute bath, or one at a low temperature, is less liable to give "double tones" than a more concentrated one, or one at a higher temperature, strongly bears out the diffusion hypothesis. Reducing the concentration of the gold ions or reducing the temperature of the bath slows the velocity of reaction between the gold and silver compounds without making anything like the same difference to the rate of diffusion into the film of the gold.

Well, but why does "double toning" only take place with blue-gold deposits? Probably because when gold is deposited in a redder form the interaction between the gold and silver compounds is much slower than when the gold is bluer.

The actual visible change of color may not be much slower in the red case than in the blue, for the reasons already given. The redder and finer deposit of gold may also be—and probably is—a better protection to the already coated particles of silver compound than the bluer gold. A finer deposit is more likely to grip its support closer and better than a coarser one. It must also be remarked that "double toning" would not be so visible in the case of warm tones, did it occur, as in the case of cold ones.

Now to return to the general consideration of the toning of P. O. P. The question for users is "What is the best toning bath to use? and how can we best compensate ourselves for the cold-tone-giving state of the paper when it occurs?" To this question I have not the slightest hesitation in returning the answer, "By employing a thiocarbamide bath."

The two great advantages of this bath are:

(1) The great range of color to be obtained by its use.

(2) Complete absence *under all circumstances* of double tones—I mean, of course, with a properly made up bath.

To these it must be added that the bath is quite free from the tendency to deposit gold in the film of damp deteriorated paper, although I do not consider this much of an advantage, because such paper should *never* be used.

The range of color is always great, although the *very richest tones* can only be obtained under certain circumstances in the condition of the paper.

The following are convenient stock solutions:

Gold Chloride.—A 15-grain tube dissolved in 11½ ozs. of water.

Thiocarbamide.—35 grains dissolved in 23 ozs. of water.

Citric Acid.—90 grains dissolved in 11½ ozs. of water.

Nitric Acid.—80 minims of pure concentrated acid (not fuming) dissolved in 20 ozs. of water.

The citric acid does not keep well, as a mould grows in its solution, and when this occurs the stock solution must be renewed.

In toning I always go on the principle of allowing a definite amount of gold to a definite area of paper. This principle was first advocated by the Kodak Company, and it is unquestionably the right one to adopt.

The following formulæ are more especially suitable for Ilford P. O. P.—the paper I use. With other brands slight alterations may be necessary, *e. g.*, slightly increasing the amount of thiocarbamide, etc.

FORMULA I.

Gold Chloride Solution,	120 minims (¼ oz.)
Citric Acid Solution,	80 minims to 2 ozs.
Thiocarbamide . .	120 minims (¼ oz.)
Water . .	to 7 ozs.

In this bath eight quarter-plate prints should be toned *together*, and when this has been done the whole of the bath must be thrown away and fresh mixed for the next lot of prints. If there are more prints than eight to be toned a proportionately larger bath must be made up. It is best to make up the whole of the bath required before toning any prints, and then to take 7 ozs. of this bath for each lot of eight quarter-plate prints.

In the toning bath I always put my prints in face downward, and keep them moving by continuously bringing the lowest print to the top. With a little practice it is possible to handle the prints so that only the very edge of the film side of the paper is touched by the fingers. Prints should *never* be trimmed *before* toning. The toning bath should stand at least five minutes after mixing before being used. The more citric acid present the redder the tone. The tone with the lowest amount of citric acid given in the formula will be *a perfectly cold brown—almost a sepia brown*. If under certain circumstances the tone is not as cold as is desired, the acid can be still further reduced, say to sixty minims. If this does not give a cold enough tone, a little common salt (sodium chloride)—about one grain to the ounce—can be added.

In the case where only a little citric acid is present, and especially where sodium chloride has been added at the same time, it may be necessary with some brands of paper in a certain condition to add a little more thiocarbamide in order to prevent "double toning." When there is sufficient thiocarbamide in the solution no "double toning" will ever occur with this bath. I do not think that it is ever necessary for the thiocarbamide to exceed 180–200 minims in the above formula. Increasing the thiocarbamide slows toning. The amount of thiocarbamide should never be less than what I have given. The best temperature to work at is about 59° F.

The time of toning depends on the amount of thiocarbamide used, the amount of citric acid used, the temperature of the bath, the brand of the paper, the condition of the paper, and the tone required, so that no definite time can be formulated for toning. One should aim, I think, at so regulating the bath that toning should take between seven minutes and a quarter of an hour for completion.

I do not use this formula when I want very warm tones—reds and warm purples. When it contains plenty of citric acid it will give these tones, but for warm tones I consider it best to substitute nitric for citric acid.

FORMULA II.

Gold Chloride Solution,	120 minims (¼ oz.)
Nitric Acid Solution .	3 drams.
Thiocarbamide Solution	120 minims (¼ oz).
Water . . .	to 7 ozs.

This bath gives reddish brown to pure red. The best and richest reds can only be obtained when the paper is in a suitable condition.

This bath will also give purple tones with long immersion, but for purples it is better to use a stronger bath.

FORMULA III.

Gold Chloride Solution	180 minims (3 drams.)
Nitric Acid Solution	3 drams to ½ oz.
Thiocarbamide Solution . . .	180 minims (3 drams.)
Water . .	to 7 ozs.

This bath gives tones varying from different shades of photo-brown to pure purple, according to the time of immersion and the exact amount of nitric acid used. I advise the maximum, or very nearly the maximum, amount given above.

It is far and away the best toning bath I have ever used for P. O. P., as it is always possible with it to get good warm purple tones. The *very* richest purples can only be obtained when the paper is in excep-

tional condition, but it will never be found wanting under any circumstances.

The general remarks which I have made about the citric acid formula apply equally to the nitric acid ones. Perhaps I ought to add that the best way of making up the baths is to take a little water first, then to add the gold, then the acid, and lastly the thiocarbamide, and after this to make up with water.

I am, of course, aware that by adding a very small quantity of sodium sulphite—an equal weight of the compound $Na_2SO_3.7H_2O$ to the amount of gold present—the sulphocyanide bath can be made to yield as a rule (*i. e.* under most conditions of the paper) tones a good deal redder than it will otherwise do, and that by this means also "double toning" can be prevented sometimes when it would otherwise occur. The reason is that the sodium sulphite slows the velocity of the interaction between the gold and silver compounds without interfering with the velocity of diffusion through the gelatine film of the gold. This control is *much* less, however, and can be much more easily effected with the thiocarbamide bath in the manner I have described. I am convinced that if anyone will make a comparison between the sulphocyanide and the thiocarbamide baths under varying conditions of paper, the thiocarbamide bath will be found to be the best under all circumstances, and very much the best under most.

In using the thiocarbamide bath it must be remembered that one must not wash the prints in water between toning and fixing. The best plan, and the one I always adopt myself, is to fix directly after toning in

Hypo	2½ ounces,
Sodium Carbonate (crystallized)	150 grains.
Water	to 20 ozs.

Allow between ten minutes and a quarter of an hour for fixation.

Just one other point: I have often seen it stated that it is only possible at any time to obtain really good tones from really good negatives. In other words, that the type of negative has a powerful influence on the toning properties of the resulting print.

It is certainly true that if a negative gives a print lacking in all light tones and in all lighter half-tones, there will not be much opportunity for double tones to show themselves. In even a less extreme case of the same kind it may happen that with a "double toning" bath a print from a negative of something like the above type may be able to be toned a little further than one in which the double tones show sooner.

No ordinary negative, however, when a really good toning bath is used, will be found to affect to any appreciable extent the toning properties of the resulting print, if a fair comparison is made.—*Photography*.

FAULTY PERSPECTIVE.

BY S. H. LIFSHEY.

THE subject-matter of the following more or less random notes is not intended to cover perspective in its ordinary sense as applied to the vanishing lines of a pictorial composition, but rather to the false viewpoints from which a great many photographers of the present day appear to measure up many of the economic questions of their business. I am personally familiar with more than one gallery in which a partition, that serves no nameable purpose but merely happened to be there when the gallery was laid out, causes the operator to walk a good many unnecessary miles in the course of a year in going to and from his skylight. The removal of this partition would cost but a few dollars; why has it never been removed in all these years? Unless the arrangement of the studio and its equipments are studied from a viewpoint of convenience to the operator, as well as one of attractiveness to the patron, the business output of the studio will be seriously handicapped and the cost of producing a given amount of work will be greatly increased over that produced from

a conveniently appointed studio. The cost in either case need not differ materially, but economy of production will be made possible by convenience in arrangement and equipment, every time. The force of this statement was lately impressed upon me with considerable emphasis in visiting the studio of a man who had lately set himself up in one of the main thoroughfares of a large city, backed up by ample capital. I was more than surprised to find that he had laid his place out in such a way as to provide a well-appointed office and reception-room, two fine dressing-rooms and a big wasted space to carry out a fancy idea of a cozy corner with draperies and palms. The rooms referred to used up almost the entire floor space at his command, and no arrangement whatever, had been provided for even the most necessary working accessories. His printing was done on shelves outside one of the windows, toning and washing in the skylight room, behind the scenes in a dark corner, and goodness only knows where the mounting and finishing were done. Demonstrators often speak of galleries unprovided with graduates, scales, or even enough trays to wash a hundred prints properly, and yet the proprietors of these galleries wonder why the output is not profitable. If photographic workers would join an amateur photographic club and see for themselves with what care and exactness the amateur works, how his formulas are prepared by weight and measure, and with what ease and quickness one operation follows another, because the equipment at hand is equal to the emergency, they will obtain a lesson of great value, even though it may hurt their feelings.

It was an amateur who first advised me to take a course of study in an art school, and it was only then that I commenced to see pictures in their proper light. Lines and tones and masses of light and shade began to mean something, and it was not until long after that I began to realize what a picture really and truly was or should be.

I believe that for those who have an institution of that sort handy an art course is a better investment than a good instrument, for your camera is only a machine, and it is not the machine but the study and ability behind it that will make it do the work every time.

Another good investment is a photographic magazine in which will be found the thoughts and suggestions of men whose experience is wide and whose advice is valuable. The photographic journal bears the message of its contributors boiled down into a small compass and so stated that it may be almost universally applied. One point concerning the illustrations in photographic journals is too often overlooked or misunderstood, namely, that all pictures published in the journal should not be expected to represent examples of perfect photography in every sense. These illustrations should be measured by their individual qualities, and it will often be found that there are as many lessons to be learned of what not to do as the opposite. I take it that some lessons may be learned from every print, some good point to be enlarged upon, some failure to be avoided; and if the illustrations are studied with this thought in view they will accomplish the purpose for which they are intended. It cannot be supposed that all the pictures published are beyond criticism, and therefore it should be "up to" every photographer to criticise for himself and to form his own judgment as to what is good and what is bad, according to the best knowledge he possesses. Such a course of reading and study will at least enable the operator to avoid an error into which one actually fell within my own experience. Not feeling equal to the strain of purchasing a proper set of well-painted backgrounds, this man employed the services of a travelling artist (?) who, after borrowing twenty cents for lampblack and things, proceeded to paint a background for the balance of the dollar. The background was completed and used. On one occasion a lady, not overhigh nor broad, posed against it, with the result that she appeared against a five-story building in gigantic proportions.

If there were more organizations for photographers such as the "Lens and Brush Club" of the New England States, and the new organization lately instituted in San Francisco, the way of the photographer would be easier and more dollars would find their way into his pocket than under the present independent system.

By the Otto Sarony Co., New York

By the Otto Sarony Co., New York

By the Otto Sarony Co., New York

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By the Otto Sarony Co., New York

By the Otto Sarony Co., New York

By the Otto Sarony Co., New York

By the Otto Sarony Co., New York

PHOTOGRAPHY FROM A PAINTER'S POINT OF VIEW, WITH SPECIAL REFERENCE TO COMPOSITION.

BY "MAHLSTICK."

A KEEN observer of the times has remarked that what is most needed for the advancement and progress of literature is more artistic perception on the part of the readers.

It occurred to the present writer that the same observation would apply equally well to photography, and a glance at one of our photographic exhibitions will convince us of the truth of the foregoing remark, if we substitute photographic art for literature, and photographers for readers.

Granted that the technical and manipulative side of the process has obtained a very high degree of excellence, it may perhaps prove interesting to the readers of this journal to dwell more especially upon the artistic possibilities of photography, which as yet are not so generally developed as they deserve to be. It is therefore the main object of these notes and suggestions to be helpful in furthering that end.

Although many prints are to be found which are entirely satisfactory from the photographer's point of view, yet their composition is frequently marred for want of a little judgment and taste, which are the result of contact with art in one form or another. In some instances, however, one may come across excellent specimens which bear witness to the author's artistic inclinations, whether instinctive or acquired, for taste will out; and what *is* taste but a sympathetic appreciation of the beautiful?

Allowing, then, that the taste and artistic perception of many photographers are below the level of their technical skill, one feels that much good may be done by an exchange of ideas between experts of the camera and others who have devoted themselves entirely to the study of art in its pictorial and decorative sense.

Without entering into the oft-debated question of whether photography is or is not an art, there is no doubt that the photographer is to blame if he fails to make his work artistic; although to claim that the camera can take the place of the artist's brain is altogether erroneous.

The scientific rendering of facts, which is the camera's peculiar characteristic, differs entirely from the selection, treatment, and feeling which an artist can bring to bear upon his work, and by which he is able, out of the most ordinary and commonplace material, to produce a composition in itself a "thing of beauty and a joy forever."

That photography has limits is generally admitted; but acknowledging and working within these limits, a photographer who is capable of receiving and appreciating impressions from nature can carry a process into the realm of art which might otherwise be purely scientific.

Good photography means something more than the possession of a first-class camera, the most approved make of plates, and a limited knowledge of chemistry. With all the possibilities for emphasizing some parts of a subject and subduing others (not to mention stopping out and printing in skies, etc.), one trembles to think of the pitfalls which await the operator who lacks that essential taste and discernment summed up in the term artistic perception.

This cultivation of taste may be acquired in various ways, and is not confined to what one may learn in an art school. To take up drawing and the numerous studies which are invariably associated with it would need more time than most members of the photographic world would be able to devote to it; nor is it altogether necessary that they should themselves be able to draw, except in some branches of photography.

They can, however, learn much from the result of other people's art studies, and in the best works of old and modern masters suggestions of immense practical value are to be found, the importance of which it would be impossible to overestimate, since their influence cannot be anything but beneficial.

These pictures should be the artistic food of those who aspire to high ideals in their profession; for they have established the standard of excellence, and are the alpha and omega of composition, of mass, line, and light and shade.

Photographers and painters have at least this much in common: they both turn to the same source—nature—for inspiration and material for their works; and to produce pictures, or photographs, which shall contain those qualities inseparable from a work of art, both have to face similar difficulties, although they proceed in different ways to overcome them.

In many instances the painter has the advantage over the camera; and it is from the successes which his method of working enables him to achieve that photographers may learn how to attack similar subjects.

The selection which a painter is able to exercise and his option of leaving out, bring within the scope of his work subjects which are quite unsuited to photography. Still, in many ways, the two professions run on similar if not parallel lines; and no doubt painters will be quite willing to see their efforts helpful to photographers in return for many benefits derived from the necessarily more scientific process.

It may be of interest to quote the opinions of two of our great painters. The late Lord Leighton, P.R.A., said: "Photography may be of great use to the artist, according as it is used, with or without judgment and intelligence. This may be considered very vague, but in reality it sums up the whole question."

Sir Wm. B. Richmond, R.A.: "Photography has been, no doubt, a medium of instruction and benefit to painters as well as to the public. . . . Photography reproduces everything, good, bad, and indifferent.

"For those who know how to chosoe, what to take and what to reject, light is an admirable master; for others it may prove to be a stumbling block."

There is encouragement as well as criticism in the foregoing remarks; and every photographer should endeavor to avail himself of an artistic training, since it is absolutely essential to the success of his work. —*Photo. Art Journal.*

A NOTE ABOUT HANDS.

BY W. E. W.

HAVE you ever spent sad moments trying to get those hands into position? If not you are a fortunate photographer and have avoided what is a real trouble to the other fellow. Perhaps the vignette helps you out of the difficulty; in confining effort to the "head and bust" the vignette has been a boon and a blessing to the hard-working photographer. One of the greatest difficulties in posing hands has been the nervous consciousness of the sitter; but this fact is, fortunately, becoming a thing of the past. The greatest troubles nowadays are the slight exaggeration of the short focus lens and the belief in many minds that hands are smaller than they really are. Do not let the sitter hear a word about her hands—try to let her forget them. Do not let the hands be placed symmetrically, so that the head looks like the apex of an isosceles triangle. Hands look more prominent on dark dresses than on light ones. A hand may be partly hidden by the folds of a dress, or its size may be apparently reduced by placing it sideways to the camera. If it is a natural pose, a hand supporting the cheek or chin usually looks well. If the fingers are relaxed, the hand looks smaller and more natural than when the fingers are stiff.

Treat each pair of hands on their merits, usually by leaving them to the natural unconsciousness of the sitter, and the difficulties of posing the hands will in a great measure disappear.

Annual Convention of Photographers' Association of Belgium is announced to be held at Brussels, Belgium, on October 15, 1904. The programme of the convention has not yet been arranged, but we are informed that a meeting of unusual interest and value is anticipated.

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The fourth of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of Pirie MacDonald, of New York, are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

PIRIE MACDONALD has many proud distinctions. He has probably taken a larger number of the highest honors than any other professional photographer that ever lived. He set (several years ago) a portrait fashion which had probably the largest run of any fashion ever introduced in America, and he has the further distinction that he was the first "Photographer of Men." In his studio to-day "no lady or child need apply," and he points out that this is not because he does not love women, "as every good man should," but because he is more at home with his selected specialty, and believes in the Roycrofters' chosen maxim, "Blessed is he who has found his work, and does it."

Mr. MacDonald's studio is simply an office room on the sixteenth floor of an enormous office building. It has no skylight, but merely a northerly double window giving a light about six feet square, and some two feet six inches from the floor. This is not Mr. MacDonald's ideal. He says: "If I could choose my own studio, it should have one window 7 x 7 feet facing the north, and its base 7 feet from the ground. The studio should extend at least 14 feet beyond the window in one direction and 7 feet beyond it in the other. Thus it must be at least 28 feet long, and if the 14 feet could be made 16 feet or 20 feet, so much the better. The studio must be at least 21 feet wide to enable me to get my sitter to a good distance from my high and concentrated light. I want no blinds or curtains to the windows, but must have my little stand with adjustable curtains to place near the sitter. I want no accessories beyond chairs of three or four different heights, and no background except a dark wall and possibly a couple of curtains in different dark tones. I want my window fitted with seven tubes of the Cooper-Hewitt light, which is a marvellously useful power, and which would enable me at any time of day or night to give a lighting exactly similar to that which I obtain at my best morning hour, 11 o'clock."

It will be seen that Mr. MacDonald's studio is one in which most professional photographers would refuse to work, and that his ideal one is very different from the ideal of most men. He wants a concentrated light, as constant as possible, because he considers that any photographer who has to look after the sitter and draw out of him his real expression has plenty to do without considering the varied powers of lights and arrangement of curtains. With the same idea of eliminating unnecessary details, Mr. MacDonald always works with the same lens aperture. He candidly admits that while he once knew what was the value of the stop, it is so long since he changed it that he is now not quite certain what it is. But if he does not know what it is, he knows what it will do.

Mr. MacDonald's idea of the secret of success is that the photographer must—

(1) Have ample time with his sitter.

(2) If possible, know his sitter fairly well beforehand.

(3) In any case decide what is the sitter's prominent point of character and attitude of mind.

(4) Attempt to represent this by a characteristic expression.

In addition to all of which, he must—

(5) Attempt to make his portrait a

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H. SNOWDEN WARD, Esq.
By Pirie MacDonald, New York
(See article, "The Portrait and the Studio")

symphony, by building up such a scheme of tones from the deepest shadow to the highest light as will emphasize the desired expression and subdue all non-essential detail.

He says: "I thank God for having increased the astigmatism of my eyes, so that it is easier for me to observe general effects than to see those details which the old-time photographer aimed to bring out as sharply as possible."

In discussing the portrait reproduced in this article, Mr. MacDonald said something to the following effect:

"During all the time I have known you I have considered that the key to your character was 'quiz.' I note that you listen to any story or statement that may be going, and when the speaker has finished you look up at him to judge from his face whether he has been telling you the truth and the whole truth. To obtain this expression I had to make several exposures which I knew would not satisfy me. I had to get you interested in my work and in my talk, and forgetful of yourself. Therefore, while studying your face, making three or four different arrangements and making exposures of them, I was all the time working toward what I wanted. I know that with most sitters an expression requires time to grow, and that if it is a natural expression there must be pauses in the growth; therefore during each posing I talked to you (and this is my method with almost all sitters), but the moment I felt that your interest was flagging or your expression liable to be strained in the least, I made an exposure and changed the plate-holder, which broke the chain of conversation, but which left you on the way toward the expression that I wanted. I usually begin with positions and lightings which are not quite satisfactory, and in my experience the proper expression and the best lighting and pose to embody that expression almost invariably come together. They are seldom good enough before the fifth exposure, and very seldom indeed are they later than the seventh.

When I have reached the good one I am always quite sure of it, so that I do not need to make more exposures. I have at times made more than seven exposures in one sitting, and obtained a satisfactory result, but these are rare cases. Generally, if I have made seven exposures without being satisfied, I make some excuse for a new sitting. By this method I 'waste' many hundreds of dollars' worth of plates in a year, and I have tried the experiment of making my first two or three exposures on blank holders. Theoretically, it ought to be possible to 'dummy' the exposures during which the expression is growing, and to put in the plate only when pose and expression are satisfactory. I do not know why this scheme will not work, but I have never been able to make it do so. Possibly the effect is psychological; I know there is a fraud, and the sitter suspects it, or I think that he may be doing so, with the result that one of us is not entirely at ease and the expression is affected."

On receiving the picture which is reproduced I suggested certain criticisms in the hope of inducing Mr. MacDonald to defend, excuse, or explain his reasons, when he admitted that the picture as it stands is the effect at which he aimed (always allowing for that amount of shortcoming which prevents a man ever being absolutely satisfied with his results). The heavy shadow on the lower left-hand side is introduced to support and give reason for the dark mass of hair on the left side of the face (right of the picture), and that dark mass is necessary to give strength and roundness to the face and to allow of the use of a long scale of tones before coming to the highest light.

A long line of face was secured to emphasize the brow and the power of thought. The line of color, the slight spots on the front, and certain lines on the lower part of the face, were intended to suggest a somewhat pointed and refined chin, which is masked in nature by the beard.

A curious side-light is thrown on human character by Mr. MacDonald's statement that although he photographs for men only, he addresses the whole of his advertisements to women, because he says that no man is photographed to please himself, but only to please the ladies with whom he is connected.

Mr. MacDonald's ideal advertising medium would be the *Ladies' Home Journal*,

and the principal reason why he does not use it is that he expects it would bring him far more business than he could personally undertake, and he has no wish to convert his "one-man studio" into a photographic factory.

STUDIO NOTES AND JOTTINGS.

BY "PROFESSIONAL."

THE PICTORIAL POSTCARD.

The introduction of new photographic processes, or the cheapening of old ones, newer and cheaper methods supplanting the older, must have a disturbing influence on the course of trade. A striking example of this was the killing of the collodion transfer by the bromide paper process. The highly colored collodion transfer some years ago was the most popular form of enlargement, and was to be seen in every photographer's window. I doubt now if a specimen could be found in any studio. Bromide paper has completely taken its place—it is cheaper and far easier to manipulate. In its effects on all departments of business, bromide paper has been most unsettling, having already changed the trade in enlargements and views, and led to a great reduction in their selling price. An enlargement in carbon or platinum must always command a fair price, and so must a view printed in silver, or in one of the former processes. Cheapness, however, is apt to conquer all other advantages, especially when, as in the present case of bromide prints, the cheap article has some superior qualities. Its latest application to the pictorial postcard now threatens to destroy the trade in portraits of celebrities. The public are satisfied with the postcard portraits of their favorites, which they can purchase at a penny each, and are not likely, therefore, to pay the professional's 1s. 6d. or 2s. for a cabinet. In the face of such competition, the trade in portraits of celebrities will not flourish, and it remains for the photographer to look for his return from an adequate copyright fee for the right to use a portrait on the postcards, and to make these a remunerative part of his business.

THE DENSITY OF NEGATIVES.

The density of their negatives is a matter which photographers are apt to disregard, imagining that any defect can be put right in the printing. On this view the thin negatives can be corrected by printing under tissue paper in the shade, and the dense ones by printing in strong sunlight. To an extent some correction can be made by such means, but it must not be overlooked that an abnormal negative is not convenient in comparison with a normal one. That is to say, a negative of average density is much easier to work, and can be applied to every printing process with success. The theory that every printing process should have a negative of special character is a very pretty one, and may be correct when taking extremes; practically it does not work out so satisfactorily. Printers do not favor the "characteristic" negative, preferring one of normal density, which can be used with any process from print-out paper to carbon. So impressed are some photographers with the fact that the right negative will give the best prints by any method that they keep a standard negative which is shown to their assistants as a guide for exposure and development. Such a standard is an excellent means of keeping the density of negatives uniform.

DOES ART PAY?

The close observer of the progress of professional photography must have noticed that within recent years two movements have been taking place which are possibly related as cause and effect, and are changing the whole character of portrait photography. The first of these is the growth of the artistic ideal and the consequent infusion into studio portraiture of the artistic element. This began with imitations of the works of Gainsborough, Reynolds, Lely, and the English school of portrait painters by the platinum process as engravings, though it has now passed from the stage of imitation to originality. The

best examples of studio work cannot be identified with any previous school of painting, because they are the work of those who have applied directly the first principles of pictorial composition. It follows that art now receives the serious attention of photographers, and that they do not depend on the technical merit of their productions for gaining the public support. The second change to which I refer is the the decrease in the size of the average photographic business. The *typical* business of to-day is commercially a very small affair, being entirely under the direct control of the owner, and independent of assistants, beyond a printer and one or two finishers. The principal does his own studio work, and neither invites nor desires an excess of sitters.

PROOFS.

Sitters expect to receive a proof before giving an order, as much to obtain the opinion of friends as for their own satisfaction. The submittal of proofs is thus a necessary part of every photographic business; the practice gives rise to much extra work, but all things considered it is to the photographer's advantage. When approved he knows that his clients appreciate his efforts, and will continue to give him support, and the proof also provides the means of obtaining an increase in the original order. The management of proofs is a most important part of the commercial side of a business, and should receive careful attention. The rough, untouched, untoned proof which some photographers submit on the grounds of economy is a complete mistake, for it will repel rather than attract custom. Every proof should be finished in the best style, being made as attractive as possible. In the long run the rough proof will be found far from being an economy. To economize in plates is also a mistake; for, even if every negative taken is not printed from, the photographer can select the best pictures. He thus has a first choice, and need finish only those positions which give the most pleasing view of the sitter. We know that every picture of a sitter is different in expression and likeness, and that a dozen negatives of the same person will all vary. It may happen that a single exposure will result in the best and most characteristic likeness, more often it requires three of four exposures. To obtain the full advantage of the proof system at least four negatives should be made of each sitter, these being closely examined by the operator, and only those finished which do justice to the sitter. Rarely will the whole number be good in expression, and with very nervous sitters possibly but one will be worth finishing.—*Photography*.

ITEMS OF INTEREST.

Photo Sculpture. In a recent number of the *British Journal of Photography* we find reference to a new method of obtaining bas-relief portraits, which from the description seems to be not only practical, but extremly good, if we may judge from the unqualified approval given the reliefs in question by our contemporary. We quote, as follows:

"Some bas-reliefs in metal of very high quality were exhibited the other night at the Royal Institution. They aroused a good deal of interest because they were produced by a new photographic process, of which we will attempt to give a brief outline. We will suppose that it is intended to produce a profile head on a medal from the living subject. We presume that the face and head of the sitter would be powdered or whitened in some way, but this is a detail of which we have no information. An ordinary negative is taken of the subject, but under special conditions of lighting—that is to say, the lighting is by means of lamps of special construction, we suppose, split up into ten planes of diminishing intensity, the brightest plane illuminating the parts of the face nearest to the lens, or, in other words, the parts showing the greatest relief. Then, step by step, the lighting intensity is diminished, until at the background it almost ceases to be light. This negative is subsequently, by the intervention of

bichromated gelatine, made to yield a mould in plaster, from which the final bas-relief in metal is obtained. Full details of the process will doubtless be forthcoming in the near future, but at present we are only able to give this bare outline, gathered from brief verbal description. That the process is a practical one is evident from the excellent examples shown, in which the head measured about two inches across, with a relief of about one-eighth of an inch."

Should this process bear out its early promise, the artists and designers of coins and medals will have a formidable rival to face. It was much the same with the wood-engravers a quarter of a century back. At first they found in photography a most potent aid, for drawings could be reproduced to any scale and transferred to the boxwood block. Then all of a sudden photography stepped in and ousted the engraver altogether. If the die sinker is dispensed with in the production of medals, coins, seals, and things of like nature, it will cause a flutter in many a dovecot. But designers may take to themselves one little grain of comfort. A man is not generally appreciated until some time after he has gone over to the majority, at least not sufficiently to cause medals to be made in his honor. The artist will still be required to shape the features of celebrities, so that posterity will know what they were like.

Printing Platinum Under Blue Glass. A writer in one of the English journals suggests the use of blue glass as an aid to quality in the printing of platinum paper.

Having noticed for a considerable time that his platinum prints were always best on bright days, when the light was free from yellow, as when it comes from a deep blue sky, he thought of trying to print under blue glass, and the improvement was very decided. The glass he finds best is a medium blue, flashed, of such a depth that adds about 20 per cent. to the time of printing, but it is well worth it. Many experiments were made, and no one to whom he showed many pairs of prints—one under ordinary light, the other under the blue—failed to at once say which was the better or to see that the difference was marked.

Sensitizing Canvas. Artists' canvas may be prepared for sensitizing with salts of silver by first removing the grease which is apt to cover its surface, after which it may be sensitized with little trouble. The surface of the canvas should first be rubbed over with a pad of cotton wool dipped in a weak solution of ammonia. The surface should be gone over in both directions a number of times until all traces of grease disappear. A sensitizing solution which is highly recommended is made up as follows:

Ammonium Chloride . .	100 grains.
Gelatine	30 grains.
Water	10 ounces.

Soak the gelatine for half an hour, then melt in a water bath, and add the chloride. Keep at a temperature of about 100° F., and with a varnish mop coat the canvas with an even and fairly thick coating. Keep the canvas level and allow to set and dry. When dry, use a broad, flat brush, and paint fairly thickly with

Silver Nitrate	50 grains.
Water	1 ounce.

dissolve, and add

Liquor Ammonia Fort 0.880.

till the precipitate first formed is redissolved. Brush this evenly over the surface and dry, and it is ready for printing on; but when sensitized it will not keep more than about thirty-six hours. Of course, we do not know what our querist's idea is, but if it is merely to obtain an image for subsequent painting, we would suggest the use of cyanide of potassium for fixing, so as to avoid long washing.

The Photographers' Association of California is reported to be steadily increasing in membership and in interest. The record of the Association since its inauguration has been a remarkably successful one, and the organization has steadily advanced until it now holds a place of distinction among the photographic societies of this country. An attractive feature of its regular monthly meetings is a general discussion and criticism of pictures by the members, each of whom are invited to submit prints and participate in the discussion of the evening. The example of the California photographers is a capital one to be followed by progressive men of other States.

PROFESSIONAL PORTRAITURE.

BY C. W. HEARN.

VIII. CONTRASTS AND SUBORDINATION.

(Continued from page 172.)

As an aid toward "Concentration of Interest" in portraiture, contrasts and subordination are much employed, both in a separate and in a collective sense. In explaining, we will try and use them collectively.

The extent to which contrasts can be employed, and yet be not overdone, is largely a matter of the character of the lighting itself. The stronger the light the stronger is the shadow cast, and consequently the greater will be the contrast. If the law of balance in the portrait be not upset by the use of contrasts, it is permissible to employ this aid to almost any extent, of course taking care that it does not violate other necessary and vital principles of art.

If these contrasts are brought into the face of the figure itself, then it may not be amiss to cite certain facts for the guidance of the photographer, which, if carefully followed, will prevent his overdoing matters, thus ruining what might otherwise have been very pleasing. Because your composition needs contrasts to draw the eye unconsciously to the point of interest, it by no means follows that it needs an over-abundance of it. Correct subordination of distracting things to their proper position of attractiveness lessens the necessity of increase of contrasts; look after the former before doing much, if any, of the latter. By this method you are less liable to get your pictures out of balance, which would in that case be very hard to restore, and would be attended with much trouble, even if successful in the end.

It would be well to keep this thought constantly in mind: Increase the contrast no more than is absolutely necssary to effect the result; anything more is liable to work out to the injury of the whole.

In effecting contrast in the face, whether done in the lighting, dark-room, or later in other processes of the work, bear in mind that the face must in all cases represent the texture of the flesh, and the planes of the face in their proper values, in the finished print.

It is generally considered among all artists that Rembrandt excelled all others in the handling of light and shade, and in the knowledge he possessed in selecting that light most suitable to show the character and individuality of his patrons. In this respect he remains the master of all time. The average student of photography, as well as his more experienced and ambitious brother, in taking him for his patron saint, often seeks to gauge his strong effects of light and shade from the reproductions of Rembrandt, where there seem to be even more contrasts, at times, than he thinks he is obtaining in his photographs. This is a wrong conception of Rembrandt's pictures and even of those which the photographer thinks he is following in his method of lighting. Rembrandt never meant to convey blank lights and inky shadows, and in good reproductions these never appear. They are strong in their contrasts in many cases, but will be found to excel in quality, texture, and in proper representation of the various planes of the face, both in the lights and in the luminosity of the deepest shadows. This is the essence of the beauty of these pictures, not only in the faces, but in all other parts of the paintings.

The strong lights and shadows which we might employ are safe for us, if these same cardinal features are carried out in photographic portraiture — *i. e.*, if the lights and shadows of the faces and draperies of the negative permit representation of the texture of these respective parts with the proper values of one part to another, the lights to the lights, the dark to the dark, and the lights to the darks. In a portrait it would be practically impossible to do this and not preserve the planes or formation of the various parts of the face to each other. This preservation of texture and planes would be difficult if the face were too strongly lighted, hence the necessity of seeing that proper

subordination of less important things be first effected, which would in consequence make it less necessary to raise the key to obtain the contrasts desired. (The writer thinks that, in the majority of cases, as the result of too strong lighting or wrong development, the contrasts are too marked, rather than otherwise. They must be reduced by some of the various methods employed, if it be impossible to remake the negative.)

When the picture is too flat, lacking interest on that account, then the building up of these parts on the negative can be done by local intensification, by other methods of preparing the negative, or by judicious printing. Whenever the negative needs reducing or intensifying the writer has found it to be a good plan to make two straight prints from it, laying one of them on a cardboard, covering it with a plain glass, and painting on the glass over it until the desired results are obtained, or doing it direct on the print itself, using the other print as a guide in both instances. The effect of reducing or intensifying can be thus seen before the negative is doctored at all, and consequently done at a later date with more judgment. While it would be much better to make the negative over again, as a time-saving and much more satisfactory method, in cases where this is impossible, very fair results can, at times, be obtained in this way.

It, however, often happens that it is desirable to draw attention to the face by contrasts, irrespective of the face or figure, but at some adjacent part thereto, and frequently, also, to serve a double purpose of restoring balance at the same time. If this necessity becomes apparent while arranging the subject, the end may easily be accomplished by throwing a light or shadow on the background or figure, as the case may be, screening the same from those other parts which it might affect. If the need of this contrast becomes apparent, only after exposure of the plate, it may be obtained by manipulation in the dark-room. If it cannot well be done, either under the light or in the dark-room, the finished and dried negative is still susceptible to treatment by which it may be accomplished. As various methods of work will probably be considered under the general subject of background treatment, to fit special cases, the principles of which could be applied in this case, the writer will not dwell further upon it at this time than to say that this lightening or darkening of certain parts to obtain the desired local contrasts is possible and most likely familiar to many of his readers.

In striving for contrast, however, after its necessity has become apparent, do not fail to exercise moderation, and see that texture, values and balance are preserved, whether it be in raising or reducing the density of the negative at these points.

In subordination you may find it advisable, for instance, to reduce a chalky neck. If you get it too dark you lose color quality of the individual. You may, however, retain texture in showing that it is a neck, but it would be out of key in being the neck of a mulatto; the values of one part of the neck to another will be fairly well retained, but otherwise lost, and balance of light to light be lost. Numerous other ills will appear, and all because the reducing was a little overdone. The reverse is equally true in raising the key of any part unless done with absolute knowledge of what is liable to occur if wrongly executed. When one thing is done something else is very likely to demand attention in consequence. When a face or other part of a portrait *jumps* at you and asserts itself with painful prominence, lower it, and immediately the whole picture becomes proportionately into tone. When right, unity of the whole is finally accomplished.

In our next issue or two we will treat of "Balance," and of this we would say as to its importance that a picture without it is like a ship without a rudder. Both may appear as things of beauty, but of no service upon the sea in the one case, or in the realms of art in the other, until these very necessary things are adjusted.

(To be continued.)

Sir William Abney on his forthcoming visit to the World's Fair will receive a warm welcome from this side of the water, where his contributions to the science of photography are widely known and very highly valued.

PHOTOGRAPHERS' ASSISTANTS.

AT a recent meeting of the Liverpool Branch of the Professional Photographers' Association of England the question of granting certificates of proficiency to assistants came up for discussion, and developed a condition of affairs not wholly unknown in this country. It is, of course, not practicable to consider the question of apprenticeship on this side of the water; but it does seem as if there might, to advantage, be instituted some sort of method by which an assistant possessed of the necessary requisites to make him valuable in the ordinary studio should be ticketed or stamped with the approval of those who know his ability. It may be urged that such a method exists, in the fact that a man of the right calibre is always in demand and may always find a profitable position into which he may fall, if, perchance, he is thrown out of employment. This is true, however, only to a limited extent. It is probably true here as there that there are constantly more positions open to men of the right kind than there are men to fill them, which only goes to prove that if the men comparatively little known to the fraternity outside of their own small circle were able to produce a certificate of ability, signed by employers capable of passing upon the subject, both sides might profit more than they do at present.—[ED. W. P. M.]

The *British Journal of Photography*, commenting upon the status of affairs in England, says:

"We sometimes hear high-class photographers complain of the difficulty they have in getting really good operators—gentlemen who have ability in posing and lighting the sitters, and are gentlemanly in manners—even when very liberal salaries are paid. At the present time, when plates are bought ready for exposure in the camera, and paper ready for the printing-frame, there is very little to be learned before presentable results—indeed, technically good ones—can be produced; but all that does not constitute a first-class photographer who can take charge of a good-class studio. Here a man of some culture, and with artistic ability and considerable tact is required, and such men are not so easily met with. At the present time the majority of 'office boys' possess a camera of some sort, who, with dry plates and P. O. P.s, after a time consider themselves proficient photographers, and in glowing colors advertise themselves as such at wages really below those that unskilled laborers of the 'navvy' type are allowed by their trades union to accept, considering the hours they will have to work. Again, employers frequently advertise for first-class operators and retouchers, sometimes to take management of a branch, and offer a salary for which it is ridiculous to expect a really competent man to accept, and, as a result, he sometimes finds that he has engaged a man of the type just referred to. Could he expect much other? A great deal of the photographic work nowadays is done by apprentices, male and female. The apprentice is either taken with a premium, or at a nominal wage, or both, for a term, by people who are themselves quite incompetent to really teach the apprentice his or her trade, their object being really to get their work done for nothing, or for quite a nominal wage. What is the outlook for such apprentices? We believe that in Germany people, including photographers, are now obliged to undergo some sort of examination as to competency before they are allowed to take apprentices. This, on the face of it, seems of some protection to the apprentice. If such a law were in force here we opine there would be fewer apprentices to photography than there are at present."

The Following is a Good Pyro-metol Developer:

A.—Metol	. . . . .	45 grains.
Distilled Water	. . . .	10 ounces.
Potassium Metabisulphite	. .	120 grains.
Pyro	. . . . .	55 grains.
Potassium Bromide	. . .	20 grains.
Distilled Water, to make in all		20 ounces.
B.—Washing Soda	. . . .	4 ounces.
Water to	. . . . .	20 ounces.

For use, take equal parts A and B.

A MODIFICATION IN GUM BICHROMATE.*

BY HUGH ALLEN.

THE gum bichromate process offers so many advantages to the pictorial worker, such as color choice, permanence, softness, and extreme cheapness, that it seems unfortunate that the process as usually worked suffers from two serious defects, namely, lack of gradation and loss of texture owing to frictional development. It may be remembered that the editor in criticising the exhibits at the last salon remarked on the failure of gum to render texture, especially in clouds, frictional development producing a woolly appearance.

If it were possible to retain the useful features of gum plus a long soft scale of tones, an increase in detail, no frictional development, and no added difficulties, the value of the process to the worker who does not feel able to cope with selective development would be considerable.

It is possible to do this, and the results are scarcely distinguishable from carbon, softness of outline being the principal difference. The points we wish to obtain are improved gradation and automatic development. Detail is a function of gradation, and therefore improving gradation will increase detail without interfering with that softness of outline which is a valuable feature of gum for pictorial work.

It is generally recognized that to obtain the best gradation and detail with the usual method of working it is essential to grind the pigment exceedingly fine, because the gum film is so extremely thin that the pigment grains are relatively large. For illustration, imagine a magnified film or coating of gum to be one inch thick, and the pigment grains to be one-eighth of an inch diameter; as then it is only possible to pile up eight grains one above the other within the thickness of the film, such a film will only be capable of rendering eight tones, as development removes one grain after another, but if these grains were ground to one-fourth of their size, then the film would be capable of rendering thirty-two tones. It appears, then, that gradation cannot be obtained unless the pigment grains are relatively small in proportion to the thickness of the gum film. As it is only a question of proportion, however, the tedious grinding of pigment may be replaced by an increase in the thickness of the gum film, and in practice the ordinary ground colors with a sufficient thickness of film are capable of giving excellent gradation. It must be understood that while gradation cannot be obtained unless the above condition is complied with, it does not of itself produce gradation, which really depends upon the proportionate rate of development of various portions of the exposed film.

Now to do away with the need for frictional development it is essential that no part of the exposed print shall be insoluble, which means that the film must have considerable more latitude than is possessed by the film of the text-books. The latter is usually constructed by mixing equal volumes of 40 per cent. solution of gum and saturated solution of bichromate, giving a watery mixture, which being diluted with the water of the gum solution is only half saturated with bichromate, and this coats an exceedingly thin film, requiring a large proportion of pigment to give shadow density. The resulting film may be said to consist of pigment particles just bound together by chromated gum, whereas the ideal film should consist of gum and bichromate only, the pigment, though necessary, being the cause of all the troubles in gum printing. Not only does it prevent light from penetrating the film, but it actually absorbs a large amount of light without giving any return in the form of chemical action. It is well known that a dry plate which is thickly coated and rich in silver will give far better gradation and more latitude in exposure than a thinly coated one, and here we have conditions which can with advantage be studied, with a view to composing our gum film on the same lines. The essential points are: a thick transparent medium filled with a sen-

* Reprinted from Amateur Photographer.

sitive resisting material which is capable of absorbing the light and converting it into chemical action. We require, then, as thick a film as will work in practice, containing a maximum quantity of bichromate, the orange stain of which will act as a resistance, while absorbing the actinic rays and converting them to our purpose. Into this film we must unfortunately introduce sufficient pigment to give the necessary shadow density to our print, but this should be kept to a minimum, with a view to producing a transparent film through which the pigment particles are scattered without being in contact, so that the fainter lights may not be blocked out by a mass of pigment, while the resistance of the bichromate may be left to deal with the more strongly illuminated portions.

The procedure in practical working is as follows: The paper must first be sized in order to fill the pores, and if the paper is at all rough two coats of size are advisable, or for fine work three coats, to fill some of the inequalities of the surface. It must be understood that the smoother the surface of the paper the better will be the gradation in the upper tones, and for rendering clouds or large masses of light tone a smooth surface is essential, but a rougher paper is quite suitable for tree scenes or similar subjects. Of course, if a smooth-surfaced paper is chosen one coat of size is sufficient. The size I use is compounded thus: Soak 1½ drms. of good gelatine in 8 ozs. of cold water, and allow to swell thoroughly, then melt in hot water bath. While warm stir in ½ drm. glacial acetic acid, then add 1½ ozs. of cold saturated solution of ordinary potash alum. If not clear, this may be filtered while hot through fine muslin. A small lump of camphor floating on the surface will act as a preservative. The size is applied with a piece of flannel, and of course must be allowed to dry—before a fire will do—previous to applying a second coat. It is perhaps simplest to size a quantity of paper to keep in stock.

The usual pigments are suitable, the essential points being insolubility in water, no chemical action with bichromate, and freedom from chrome or mercury compounds which will at once render gum insoluble. Ordinary oilshop dry ground colors will do well. As the quantity of pigment used is very small, I recommend making up a series of stock tints, thus:

No. 1.—Burnt Sienna	. .	44 grains.
Vegetable Black	. .	4 "
No. 2.—Burnt Sienna	. .	40 "
Vegetable Black	. .	4 "

and so on, reducing the amount of red four grains at a time, and keeping the black constant. These should be rubbed together dry, and each tint bottled and labelled. It is easy in this way to repeat tint and to note on the label the quantity of each that should be used.

The gum mixture is now compounded:

Take Warm Water	. . 6 drams.
Stir in Powdered Bichromate of Potash	. . . . 30 grains.

This will dissolve in two minutes, and will give a saturated solution.

Stir in Powdered Gum Arabic	. 90 grains

which will dissolve in about fifteen minutes.

A stock solution of bichromate may be used, but I have always adopted the above method, which ensures the same conditions every time. The gum is powdered in a mortar and sifted through coarse muslin, there being no advantage in grinding very fine. For black, 3 grains of vegetable black is sufficient, and must be rubbed up first with a drop or two of water with a palette knife or in a mortar, and the gum solution added gradually and rubbed in. For a warm brown 10 grains of the No. 1 given above will be right. Burnt sienna is heavy, and vegetable black very light, so that less of No. 2 will be required, say 9 gr., the necessary quantities when found being noted. Keep the amount of pigment as low as will render your shadows. For coating I use a badger hair tooth-brush, an old one will do, and cut away the outside rows of hair, leaving one row down the centre of the brush, as the full brush holds too much. For a 10 by 12 sheet use 1½ drms. of mixture. Pin your paper on a board and cover it well to the edges as evenly as you can, and when covered brush it first one way and then across, letting it rest at that for a minute till the paper has expanded. Now move your pins to take up the stretch, and, keeping

the boards horizontal, brush across one way and another with light strokes till the coat seems fairly even. No softening is required, as, owing to the thick gummy nature of the mixture, it soon sinks down to a sufficiently even surface. Naturally, the thicker the film the less fear is there of coating marks showing in the finished print. The coated sheet may now be put in a cupboard to dry, or held in front of a fire and fanned, when it will be dry in three minutes. The paper being fairly sensitive when dry, excess of daylight should be guarded against during the drying process. If some white spots appear and refuse to be covered, just ignore them, as they seldom are visible on the finished print, and can easily be retouched if necessary. The smoother the paper, the more this trouble will appear, being caused, in my opinion, by small particles of grit which break the skin of the coating, the surface tension causing it to draw away from the centre particle, which can easily be seen with a lens, and removed with the point of a knife, if worth the trouble. It will be found easier to coat a large sheet and cut it up than to coat small ones. Paper prepared in this way will keep a fortnight, or more, if kept under pressure, but I can recommend a cheap calcium tube which will take 12 by 10, and costs complete about 2s. In this prints may be kept some hours after printing, but prompt development is always advisable.

For printing, the use of an actinometer is strongly advocated, saving as it does a lot of disappointment, and being no more trouble than any guesswork system or want of system, its utility being especially apparent, as the best results are usually obtained from the print that has received no more than sufficient exposure to fix the high light details. A simple actinometer may be constructed in an hour with a series of superimposed layers of tissue paper attached to an old cleaned plate and used in a printing frame, exposing on little strips of P.O.P. I find that strips of from one to twelve thicknesses of a rather yellow oiled tracing paper cover the whole range of suitable negatives. On each layer is marked in black the number of thicknesses contained in that layer, and the number on the exposed strip is judged by the last figure that is visible in white on colored ground.

In winter and spring printing is best carried on in the strongest light available, as the one point to bear in mind is that the high light details must penetrate right through the film and get a hold on the paper, otherwise they will wash away as development approaches completion. A gum print differs from any other print before development in this particular, that the image is not merely a surface one, but is inlaid through the thickness of the film. In a properly exposed print no portion should be completely unexposed, and no portion should be rendered insoluble, the action of light passing through the negative being to reduce the solubility of the gum in proportion to the intensity of the light passed, the tones being then formed by varying rates of development of the more or less exposed parts of the print. If the shadow portions of a print are overexposed there will not only be a lack of shadow detail, but the surface of the shadows will be glossy and show coating marks.

As an experiment which will show the inlaid character of the image in a thick gum film, after printing on smooth paper, rub over the surface of print with a piece of glasspaper, and it will be found on development that no harm has been done to the print beyond slightly reducing the density of the shadows. In gum printing there is a certain minimum light intensity which is necessary to penetrate the film, and when, as too often happens on a dull winter's day, the light falls below this minimum, prolonged exposure will not compensate for lack of light, the high lights remaining underexposed, though the shadows are fully printed. It is therefore advisable in winter to work from thin negatives free from pyro stain, avoiding the use of red pigments, though in direct sunlight strong negatives and in summer time the densest negatives showing a good range of contrast may be used. Considerable control over contrasts may be exercised apart from the color effect; softness is obtained by the use of smooth surfaced paper, printing in strong light, with minimum exposure, and development in cold water, while, on the other hand, a rough-

surfaced paper, printing in shade, full exposure, and development in hot water will tend to give contrast.

To develop, place the print in a dish face up, pour on a little cold water and rock the dish till the water is quite orange with bichromate stain; pour off, and add more water, taking care not to pour it directly on the face of the print. Three changes should remove the bulk of the bichromate, and the print should be then lifted from the dish, which is filled quite full of cold water, and the print gently lowered into it face downward, when it will float on the surface. Development may take up to twelve hours or more, but the best prints are usually those that develop in from a half to three hours. Always start with cold water, and, if necessary, raise the temperature. Do not try to force development by rocking, as the wet film is very tender, and the less the print is worried during development the better. When ready, hang print up by one corner to dry. Prints dry darker than they appear when wet.

The process lends itself especially for printing from enlarged negatives—bromide paper ones working well—not only on account of the artistic results which may be produced, but owing to the absurdly small cost. The most humble of us may work for the best results without feeling financial limitations, as might be the case with other processes. As to the materials, I can recommend the following from personal experience:

Papers. Rough: Whatman's N. Surface H. P. Drawing; price varies with weight. Smooth: Hollingsworth Turkey Mill Smooth Drawing.

The gum I use is called picked Turkey gum, to be obtained at any good oil and color shop. I find that some gums are more difficult to grind than others, the most suitable being hard and brittle, and therefore easily fractured under the pestle.

I strongly advise accuracy in making up the gum mixture, as the thickness of coating depends almost entirely on the consistency of the mixture, which would be altered by varying the proportions. At the same time I do not hold that the proportions given are the only correct ones, as if the principles involved are understood it might be advantageous to alter the formula to meet certain conditions, but as given it may be relied upon to produce results such as are not usually obtained by the gum process.

THE OLD PHOTOGRAPHY AND THE NEW.

In the last number of this Magazine we reprinted a most interesting contribution from the *British Journal of Photography* in which the differences between the old and newer methods of negative making were reviewed and compared in a most interesting and instructive manner.

Reverting to the subject in a still later issue, the writer takes up in detail the matter of printing-out papers. He says:

"No one will dispute the fact that a very large proportion of the silver prints made, say, during the past decade or so, show a marked lack of stability, while many may be seen in old family albums that were made some thirty or forty years ago which are practically unchanged, and some even as good as when first produced. Prints, it is true, were made in the early days of the art that have not withstood the test of time, but it would be safe to say that a proportionately far larger number of silver prints produced now show earlier signs of decay than did those of thirty or forty years ago.

"We shall here point out, as we did with regard to negatives, the different conditions under which the earlier prints were produced and those obtaining now. We refer particularly to printing-out processes, as the development ones were dealt with in connection with paper negatives. Up to the time of the introduction of gelatine papers, albumenized paper was the one in vogue. Going back to the earlier days of its use, we are reminded that what was then termed albumen paper was what would now be called a matt surface one, inasmuch as the albumen employed was largely diluted with water.

"If we refer to the third edition of *Hardwich's Photographic Chemistry* (1856) we find that the formula for this paper stands thus: Chloride of ammonia, or chloride of sodium, 200 grains; water, 10 ounces; albumen, 10 ounces—that is, equal parts of water and albumen, with 10 grains of chloride to each ounce. On this the paper, which was of a thinner and purer kind than is necessary for gelatine P. O. P.s, was floated for a minute and a half. When dried it was sensitized by floating it on plain solution of nitrate of silver, 60 grains to the ounce of water, for three minutes. A much stronger solution than this used to be frequently employed. Here, it will be seen, the chloride of silver was formed by a double decomposition. Now it will easily be realized that the albumen and the chloride, with the one-and-a-half minute floating, would penetrate well into the body of the paper, and with the three minutes on the silver bath the solution would soak deeply into the paper, and would, also, have much remaining on its surface when dried. As a consequence, the image, when printed, was as much in the body of the paper as it was on the surface. But this is not all, for the negatives in vogue then were totally different from those of the present time. They were collodion ones, having great density in the lights, and perfectly clear glass for the deepest shadows. They took a long time to print, and, as a consequence, they were deeply bronzed in the shadows, and the image was well in the body of the paper, and with specially strong negatives it showed strongly on the back, proving that the image was composed of a large quantity of reduced silver.

"At the time referred to the toning bath employed was the combined one. It was very strong, and contained only gold, with sometimes a little silver, hypo, and water. No such things as alum, lead, acid, etc., were used, as in the modern combined bath. We have said that the bath was very strong. Here is the formula as given in the edition of *Hardwich* just quoted from: Chloride of gold, 4 grains; nitrate of silver, 16 grains; hyposulphite of soda, 4 ounces; water, 8 ounces. The toning took a tolerably long time, usually from a quarter to half an hour, and frequently much longer, as the gold became exhausted, so that there was little question as to whether the pictures were fixed or not. Notwithstanding that, some workers further fixed the prints by an immersion of ten minutes in a fresh solution of hypo. With plain salted paper, which at that period was largely used, similar conditions obtained; the paper was heavily salted, and was sensitized in a strong solution of silver—either of ammonia-nitrate or plain nitrate.

"At a later period the albumen was less diluted. *Hardwich* (1861 edition) gives the proportions: Albumen, 15 ounces; water, 5 ounces; the chloride remaining as above. When the *carte de visite* became the rage a more glossy surface was desired, and then the albumen was employed undiluted, and sometimes thickened up by evaporation. In this way the image was kept more in the albumen coating; still, much of it was in the paper itself. About this period the separate toning and fixing system was generally adopted, which, theoretically, added to the stability of the picture. The prints, after fixing, were washed in cold, and afterward warm water, and at the later stages in quite hot, so as to ensure the removal of the last traces of the hypo.

"Having referred pretty fully to the old conditions, let us consider those now prevailing. With the gelatine P. O. P.'s the paper is usually surfaced with a 'baryta' substratum on which the emulsion is spread. The chloride of silver is formed in the emulsion, and not, as in the former method, by double decomposition in the albumen film and the paper; it also contains an organic salt to add vigor to the image, and very little free nitrate of silver. The negatives now used are very unlike in character those employed in the old days, being feeble in contrast as compared with them. In the modern prints the image is confined entirely to the gelatine, whereas it used to be to a great extent in the body of the paper itself, as could be seen if a print were roughly torn across.

"There is another process that should be referred to here, as it of late has come under suspicion as regards stability—namely, the collodio-chloride. This process should, theoretically, be the most perma-

nent of all silver processes, and it has proved itself to be so when worked under the old conditions. In its early days the paper used was the same as that used for albumenizing, which is the purest photographic paper made. It was first given a thin coating of arrowroot, and, after drying, the collodion emulsion was applied. In the modern collodio-chloride process a cheaper paper is used, and it is surfaced with a 'baryta' coating similar to that for gelatine papers, and there is very little question that the free nitrate in the emulsion to an extent combines with the vehicle with which the 'baryta' is cemented to the paper. Hence it will be seen that there is a considerable difference between the collodion paper of thirty or forty years ago and that at present on the market.

"We think we have now pointed out, both with regard to negatives and prints, the difference between the principles involved in the early methods and the more modern ones. This we have endeavored to do in such a way that the subject may be well understood by those whose experience in the art has been confined to the last decade or so and with gelatine-emulsion photography only.

PHOTOGRAPHERS' ASSOCIATION OF PENNSYLVANIA.

SUCCESSFUL PHOTOGRAPHERS.

Is it not true that the most successful members of our profession are those who are in the *habit* of attending the conventions? Yea, verily; I have no chance to get an argument out of that question. Size up the situation and condition of the business in any city or town you may choose, and invariably the leader in that town you will find to be one who regularly attends the conventions. At some period of his past life he became convinced that it would be a nice trip, perhaps he went for a vacation, or out of idle curiosity. No matter what the motive, after attending the first meeting he realized how much good he received from it, and he determined to go again; then it became a habit. Habits oftentimes are bad things when they are not well formed, but in all sincerity I would say, get the habit of attending the conventions. It will give you new inspiration, develop your artistic ability, accelerate your business and intensify your pleasure. All of these things are your daily pursuit; they are within your reach, and perhaps you do not know it.

How can the Association help you financially or help you to get better prices? Most assuredly in helping you to do better work it will help you to *get more for it.*

It is sometimes said, "I will join the Association when it does me some good." Impossible; it will never do you any good until you get the habit. Attend the conventions regularly, send some of your work, compare it with that of your brother in friendly criticism.

Our Association is progressive in its character, and is steadily growing in strength. As it grows stronger in numbers it becomes a more powerful factor in giving protection, elevating the standard of our profession, educating the public to a higher appreciation of art, teaching each one of us to do better work, and incidentally getting better prices for it. Every professional photographer should participate in these advantages, for he has that privilege, and by joining the Association he helps himself first, and at the same time strengthens the Association, giving it more power for good.

The Pennsylvania Association includes West Virginia, Maryland, and Delaware, and will hold its annual convention this year at Harrisburg, Pa., May 24th to 26th inclusive. You are invited to *get the habit* by attending this convention; the lectures and demonstrations will be by the best talent available. By all means send some of your work. That is where you gain. There will be no first, second, and third prizes this year. We are progressive; and the officers concluded to abandon that method, and, instead, issue a handsome certificate of acceptance to all exhibitors. There will be no disappointments.

It is important to make application in advance for exhibit space, as a great many entries are already in, and the interest manifested by reason of issuing the certificate instead of medals indicates that there will be a very large exhibit, so we must know how much wall space to provide. Send application for entry and membership to W. I. Goldman, Reading, Pa. Any other information may be had by addressing the Secretary, Chas. R. Gates, Lebanon, Pa.

E. W. BROWN,
President.

BEAVER, PA.

INTENSIFICATION WITHOUT METALLIC SALTS.

IN a recent paper read before the London and Provincial Photographic Association of England, Mr. J. S. Teape outlined a method for intensification of a silver image without the deposit of metal upon it. Mr. Teape based his remarks upon the tendency of the present time among careful workers to produce negatives not requiring a very great amount of increase in density, and claimed for it that such negatives required only a slight intensification to produce that fulness of image impossible when printed from a weak negative.

Commenting upon the methods of intensification generally in use, the speaker said that all others than his own involved the deposit of either more silver or more other metal upon the negative. Many of these deposits, he said, were very unstable. Showing a couple of such which he had found in a very bad condition, owing to their having been intensified with ferricyanide and uranium, he explained the method by which he had removed the iridescent stains that covered their surface by the aid of a soft cloth and methylated spirit, after which intensification was removed by soaking in ammonia and water. These negatives were then reintensified by his own method, for which he claims safety and permanence, because of the fact that nothing is added to the image that can by any possibility be expected to fade. The speaker referred to his first use of this process during the year 1890, when he employed it to intensify an image on bromide paper. A number of strips were shown of a print intensified by this method at that time which had not faded in the subsequent years. These strips of intensified paper gave a valuable proof of the permanence of the process, which was carried out by rehalogenizing the silver in the film and redeveloping. The amount of intensity depends very largely upon the developing agent used in the second development.

Mr. Teape said that his attention was directed to the suitability of the process for the intensification of negatives when he used it for the removal of stains from a negative brought to him about eighteen months ago. Mr. Teape said that "the film was chlorized, washed, and redeveloped, when it was found that the stains had disappeared, thus proving pretty clearly that they were not silver spots and stains.

"The image may be chlorized or bromized. The following formulæ have given satisfactory results:

TO CHLORIZE.

Bichromate Pot.	5 grains.
Chloride Pot.	10 grains.
Hydrochloric Acid	4 minims.
Water	1 ounce.

TO BROMIZE.

Bichromate Pot.	5 grains.
Bromide Pot.	10 grains.
Hydrochloric Acid	4 minims.
Water	1 ounce.

"The bichromate may be kept ready by dissolving ½ oz. in 5 ozs. of water. Take 50m of this to each ounce of solution you require. This might be used stronger, but the result would be the same, only it would act a little quicker. The negative is soaked in water or put direct into the solution. I advise that it be kept for a little time after it is bleached right through. The plate is then thoroughly washed; I have found thirty minutes ample. I then choose the developer according to the amount of increase I require.

"Temperature plays its part in this as in other chemical operations. If the temperature is below 60 F. the redevelopment is very slow—in fact, sometimes will be as much as ten minutes in starting; but if it is above this the development is completed in from two to ten minutes.

"If you wish only to intensify the delicate tones you can do so by soaking the plate in water, then slightly chlorize the surface of the plate, then wash and redevelop. In this case you should have plenty of solution so that it will act all over the plate at once.

"The results by this process almost smack of a little photographic legerdemain, as we get, or appear to get, something out of nothing. In some cases the brown-colored image confers greater printing value; but where this is not the case, as in hydrokinone, there is a greater increase in density. In one negative the image was a weak brown, and it was redeveloped hydrokinone, and in that portion it is black.

"REDUCTION OF DENSITY. With a very slight variation in the process it can very effectually be used for reducing density, perhaps most particularly in the reduction of contrasts. By this method you can reduce contrasts to any extent you please. To proceed, you chlorize the image, wash, then redevelop; it must be carried much further than the density you require; then rinse with water, and put in a hypo bath. The peculiarity of this process is that you do not only reduce the densest parts, but you increase the density of your delicate tones according to the developer you use. This is what is very frequently required, but I know of no other process that will do this. In the use of persulphate of ammonium a trifle is lost in the shadows. If it is desired to take a thin coat off the image, slightly chlorize, wash, and fix."

PHOTOGRAPHY IN NATURAL COLORS.

PHOTOGRAPHY in natural colors has been the dream of many an enthusiast, but up to the present moment no thoroughly satisfactory process has been evolved. Beautiful and realistic as are the results obtained by means of trichromatic negatives and pigmented printing papers, these methods can only be regarded as a kind of compromise with the ideal of direct and unfaked color photography. Such ingenious processes are, however, steps in the right direction, and every improvement upon existing methods is to be hailed as an approach to the real thing.

The latest researches in color photography are those now being conducted by the Austrian scientist, Oberlentnant von Slawik, at the laboratory of Dr. Ad Hesekiel & Co., Berlin. This experimentalist has already obtained some remarkable results. He uses ordinary negatives taken upon ordinary plates, the real secret of his process being the method by which the printing paper is prepared. The latter consists of layers of chromium jelly, each layer containing a different colored pigment. When one of these layers is affected by light it becomes insoluble, and upon development shows up clearly in its own color, while the surrounding layers which have not been touched by light are washed away.

The reader will perhaps follow this idea more clearly if we briefly describe the operation which would take place in making a color print by Slawik's process from an ordinary negative. The latter we will assume to be a subject which included blue sky, green trees, and red buildings. In such a negative the sky would, of course, have the thickest deposit, the trees would come next, and the red buildings would appear almost transparent. Now the pigmented layers on the sensitized printing paper are laid over each other in a similar ratio. The red layer is at the bottom, the green layer midway, and the blue on the surface. This paper is placed in a printing-frame behind the negative in the usual manner. The transparent portions of the negative (in this case represented by the red buildings) would transmit the greatest amount of light, which would strike through all the layers of the printing

paper down to the red. The portions of the negative representing foliage would strike down to the green layer, and the sky portion would transmit only sufficient light to affect the topmost or blue layer on the surface of the paper.

The pigmented layers are now transferred bodily to the surface of another paper. This operation brings the red layer to the top and puts the blue at the bottom.

Upon development those layers which have not been affected during the process of printing are washed away. The portions which represent sky, for instance, are washed away down to the blue or bottom coating. The parts representing foliage are all dissolved away till the green coating is reached, which, of course, cannot be washed away, because it has been rendered insoluble by the action of light. The red pigment (which as already explained is now uppermost) also remains intact where light has reached it, and though it is superimposed upon all the other colors, these latter cannot be seen under the red in the finished result. In practice it has been found advisable to use thirty or forty pigments when coating the paper, thereby securing every known hue. We watch the further results of these experiments with interest.—*Focus.*

NEWS AND NOTES.

Dry Mounting of Prints. A novel method of mounting prints without wetting is reported as having been introduced into England from the Continent, and consists in placing a thin, adhesive film between the print and the mount, the three then being sealed by heat and pressure. *Photography* says: "The film is a tissue paper saturated with a gum or resin that becomes tacky on the application of heat, and a piece of the required size is laid on the back of the print and made to adhere at one point by a touch with a small iron that is kept heated for the purpose. The print is then trimmed to size and placed in position on the mount, and is temporarily secured by another touch of the iron. When the whole batch of prints have been thus treated, they are placed one at a time in a platen press, heated by gas to a temperature of about 170° F., in which one pinch completes the whole process.

"It is claimed for the process that the gum in the film is not only not injurious to the print, but that it protects the image from any injurious matter that may be in the mount. As there is no moisture in the film, this claim appears to be well founded. It follows that any material that is thought to be desirable may be employed as a mount, however unsuitable it may be under ordinary conditions.

"There is, of course, no expansion of the print, as when it is wetted, no cockling or warping of the mount, however thin, and the surface of the print is not altered in any way, so that for glazed prints this is an ideal method of mounting. The firm undertakes mounting for the trade, so that those who do not at first care to invest in the necessary appliances may give the process a trial in that way."

Removing the Film from a Cracked Photographic Negative. The following method of removing a film from a broken negative without injuring the film was given by Arthur Hands in a recent issue of *Work*: Lay the cracked negative on a sheet of plain glass, which should be done by sliding one on to the other, for, if a cracked negative is lifted, there is danger of cracking the film. Now coat the film with enamel collodion by pouring a pool in the centre of the negative and tilting it gently, so that the collodion flows to the top right-hand corner, thence to the top left, then to the bottom left (where the negative is held by the thumb and forefinger of the left hand), and finally to the bottom right-hand corner, the excess of collodion being poured into the bottle. As soon as the film of collodion is quite set, the broken negative, together with its support, is placed in a 5 per cent. solution of hydrofluoric acid; the film then immediately begins to pucker around the edges and can

easily be removed from the glass. The best plan is to roll the film by touching it gently with the forefingers. Remove the glass, pour off the solution, and fill the dish with water. Coat a sheet of glass with a 5 per cent. solution of gelatine, or with enamel collodion as before, and insert this glass beneath the film, bringing the two in contact and in the right position under the water and then withdraw together. Stroke the film gently into close contact with the glass, using for the purpose a flat camel-hair brush; be careful not to stretch the film. The object of coating the film with collodion before stripping is to avoid stretching.—*Photographic News.*

The cause of depression in the business of the photographic studio was the subject of a paper read before one of the prominent English societies a short time since, and while the general tone of the discussion seemed to base the cause of depression upon the general lack of business throughout the country, there was an evident undercurrent of belief that the depression might be traced somewhat to the encroachments of the amateur into the professional field. Considerable discussion was developed, and a consensus of opinion seemed to be that a possible way out of the difficulty might be found in increased facilities in the studio for work by artificial light. It was held that the output might be materially increased by using more rapid papers, adapted to use by artificial light, and that many sitters would be enabled to patronize the studio who are debarred by the limitations of business, which precludes their visiting the studio during the hours of daylight. The thought is one that offers food for reflection.

Hand Cameras at the World's Fair. Intending visitors to the World's Fair will be interested to know that official notice has been received by the Eastman Kodak Company to the effect that hand cameras up to 4 x 5 inches in size will be admitted to the ground without charge, but these cameras may not be used with tripods, however, but must be literally, hand cameras. It is but fair to add that the efforts of the Eastman Kodak Company toward the acquirement of this concession have probably had much to do with bringing it about. The coming Exposition will be the first in this country that has viewed the matter of photographic concessions to the hand camera workers in this spirit of breadth and liberality, and we opine that the management will have no reason to regret having made the concession. Its effect upon the Exposition ought to, and we believe will, be distinctly good from an advertising standpoint, and its value to the visitor who desires to take away with him interesting, instructive, and otherwise valuable records of the great meeting will be inestimable.

Lighting white drapery, to keep it from developing so far ahead of the face that it becomes "chalky": Make a frame (similar in shape to the vignettte board used in front of the lens to vignette off the lower part of the figure) but have just the frame of this board. It can be cut out of a board or made of wire. On this frame stretch a thickness of black veiling, which can be secured at the dry goods store. Now use this screen exactly as you use your vignette board, only raise it so the entire drapery is covered with it. The veiling does not stop out the light from the drapery, but retards it, making it register slower. Some exquisite effects can be obtained by using two or three thicknesses of veiling, each succeeding thickness being about one inch less in width, which will give the effect of gradual reduction in intensity as it goes toward the base of the picture.—*Note from Illinois College of Photography.*

Warming the Developer. The advantages of warming the developer to get out detail in underexposed plates has, says a writer in the *Queen*, lately been attracting notice. In one case a jet of hot air is strongly advocated, this being turned on to a particular spot where detail hangs back most. A jet of steam from a kettle is also suggested, but great care would have to be exercised in its use for fear of melting the gelatine film, especially when using metol, which has not the tanning and hardening effect of pyrogallic acid. [In spite of this Miss Mathilde Weil, in the *Photo Miniature*, No. 58, uses warm solutions of metol, and speaks of the advantages of this modification. — EDITOR.] Good as the two

methods undoubtedly are in expert hands, a still better plan for the ordinary amateur is to dilute the developer slightly with hot soft water, so that the glass feels comfortably warm to the hand. The effect of the developer on the film will be best appreciated if one plate of the same exposure is developed with cold solution, and one with the warm liquid. In the first case details will come up in a manner little short of marvellous, while the other will hang back for an uncomfortably long time, and finally come up hard and black, short of detail, and with a decided tendency to fog. Another and also very good way is to place the developing dish in a tray a size larger, full of common hard hot water, just so hot that the finger can be placed in it, and then rock the two trays steadily, adding fresh hot water as the heat evaporates. This plan is to be preferred when hot soft water is not easily obtainable.

Sensitizing Carbon Tissue. A new method for sensitizing carbon tissue for the occasional worker was suggested by Mr. H. W. Bennett before a recent meeting of the Royal Photographic Society of England. Referring to the peculiar advantages of the carbon process, Mr. Bennett dwelt upon the special facilities it afforded for printing in a wide range of colors and the difficulty experienced by the smaller workers in keeping a stock of the sensitized tissue on hand. Under Mr. Bennett's suggested method it would seem to be possible to sensitize very small quantities of the tissue, subsequently dried in an ordinary room. The solution recommended was as follows: potassium bichromate, 1 ounce; citric acid, ¼ ounce; water, 50 ounces; ammonia, about ¾ ounce. The proportion of ammonia required might vary slightly, but sufficient should be used to change the color of the solution to a distinct lemon yellow. This solution was recommended for almost all makes of tissue. The drying might be carried out without any special precautions beyond the darkening of the room, and would take from four to about seven hours. Tissue sensitized according to this method showed no tendency to break, and would allow the backing paper to be stripped off quite easily. The citric acid had considerable effect in regard to the gradations of the print, and the proportion could be increased or decreased as found desirable. The printing took about 50 per cent. longer than usual, but that was a very small disadvantage in face of the fine gradation obtainable. All makes of tissue appeared to be equally sensitive when treated in this bath. The keeping qualities of the solution were very good, provided it was carefully made up and distilled water used. Some of the prints shown were made with solution which had been mixed up several weeks. Mr. Bennett said he usually sensitized the day before printing, and found no special precautions in regard to storage necessary, beyond keeping the tissue under pressure and protected from the light and air.

The Indiana Association of Photographers. The Tenth Annual Convention of the Indiana Association of Photographers is to be held at Winona Lake, Ind., from June 27th to July 1st, inclusive. An urgent plea is made to all interested in this Convention to prepare exhibits and give to it the benefit of their presence. The following list of awards has just been made public:

Grand Prize, selected. Six pictures, thirteen inches or larger.

Genre Class. One picture, no restriction as to size. Subject to be chosen by the photographer, the title to be appropriately inscribed on the picture. First award, gold medal; second award, silver medal.

Miniature Class. Twelve pictures, four inches or under. First award, gold medal; second award, silver medal; third award, bronze medal. Markings in this class to be on a basis of twenty points each for lighting, posing, chemical effect, printing and miniature effects.

Class A. Six panels, eight inches or larger. First award, gold medal; second award, silver medal.

Class B. Twelve cabinets, oval or square. First award, silver medal; second award, bronze medal.

Class C. Open to photographers in towns of 5000 or under. Twelve pictures, any size. First award, silver medal; second award, bronze medal.

Class D. Open to photographers in towns of 3000 or under. Six pictures, any

size. First award, silver medal; second award, bronze medal.

Full information and blanks for entry may be had by addressing the Secretary, W. E. Vilmer, Crown Point, Indiana.

Reversal of Image. A paper recently read by M. Adrien Guébhard before the Paris Académie des Sciences records an an attempt to represent the phenomenon of photographic development as a function of the time of development. M. Gubéhard employed a highly diluted solution for this purpose in order that the phases of the process might be kept separate, and he thus traced the reversal and re-reversal of an over-exposed plate. He recognized the oxidation of the developer as a disturbing factor in the prolonged operation, yet failed to obtain the reversal phenomena on adopting a very natural safeguard against oxidation—the acidification of his para-amidophenol developer.—*Amateur Photographer.*

EDITOR'S TABLE.

THERE has just been published by the Lens and Brush Club of Boston a short history of the club, together with its Constitution and By-laws. The booklet also contains a list of the present officers. The general object of the club and its work are familiar to all who are in touch with recent progress in photography, but its scope is, perhaps, not appreciated as it should be. Movements similar to that embraced in the work of the Lens and Brush Club might to advantage be instituted in every large city in this country, and a reading of this most interesting and valuable little publication is recommended to all who have the interest of photography and their own advancement at heart. The book is published by the Ways and Means Committee, information concerning which can be had by addressing W. JOHN SERLE, Secretary and Treasurer, Everett, Mass.

WE have before us an Official Programme of the P. A. of Iowa Convention, which was held on April 19th, 20th, and 21st. The programme contains the rules and regulations of the Association, diagram of floor space and a well laid-out programme of instructive addresses and demonstrations. It is well printed on coated paper, and contains a number of excellent half-tone illustrations. A feature of the programme is to be found in the page devoted to the For Sale and Exchange Department, in which it is apparent that a portion of the hall space has been reserved for the exhibition and sale of photographic goods by members of the Association, it being specially stipulated that no one should be allowed to bring goods to this department "unless a member in good standing and present at the Convention."

THE official programme of the Association of Wisconsin is just at hand, and is a finely printed, well-illustrated publication of some fifty pages, containing the programme, official announcements, etc., and handsomely illustrated with half-tone prints by B. A Rice, J. H. Field, E. C. Berryman, V. Herman, J. M. Bandtel, A. A. Bish, H. C. Watton, Klein & Gutterstein, H. S. Miller, and W. Hinderman. The programme also contains a list of the active and associate members. This Convention was held in Milwaukee on Wednesday, Thursday, and Friday, April 27th, 28th, and 29th.

THE growth of the Illinois College of Photography is again demonstrated in the recent establishment of the Bissell College of Photo-engraving on the college grounds at Effingham, Ill. The Bissell College of Photo-engraving is intended as a school of practical training under the direction of photo-engravers of skill and ability. Excellent facilities are afforded the student for a thorough course in the work. The catalogue of the college, just issued, contains a list of the officers and faculty of the college and a very comprehensive outline of the course of study to be followed. Full information may be had by applying to L. H. BISSELL, President, Effingham, Ill.

WE regret to learn that the March number of the *Photo Era* was destroyed by fire on the 22d of March last, when almost ready for publication. Some of the forms were standing, however, at the time of the fire. The publishers reprinted the issue with all possible dispatch, and it was in the mail with surprisingly little delay. None but the publishers of a monthly publication can, perhaps, fully realize the annoyance of such a loss outside of its value represented in dollars and cents. WILSON'S PHOTOGRAPHIC MAGAZINE offers its hearty sympathy to the *Photo Era* in its present dilemma.

ONE of the most sumptuous catalogues ever produced as a souvenir of a photographic exhibit is before

us in the shape of a handsome volume issued by the Carnegie Institute, and illustrates the work of Photo-Secession at the recent exhibit at the Carnegie Library in Pittsburg, Pa. The book is handsomely printed upon heavy tinted paper and illustrated with seven photogravure plates, printed upon Japanese paper, embracing the work of Eduard Steichen, Clarence H. White, Gertrude Käsebier, Alvin Landon Coburn, Prescott Adamson, and Joseph T. Keiley. With the cover of heavy imitation parchment it makes a very attractive catalogue.

REFERRING to an editorial note in these columns some months since, in which it was stated that the *Photographic Art Journal* of England was to be discontinued, we learn that, commencing with the March issue, 1904, it was incorporated with *Camera Notes*, the organ of the British Photographic Society, edited by H. Roland Bateman and A. L. Curtis, of Bath. The *Photographic Art Journal* has contributed largely to the improvement of pictorial photography on the other side, and it is to be regretted that a fuller support was not accorded it. We doubt not that the amalgamation of the two publications will prove to be beneficial to the older magazine.

PROGRESSIVE photographers with an eye to change of location in the near future will do well to consult the advertising columns of this MAGAZINE. An opportunity is there offered for the purchase of a studio property which, in the hands of the right man, may be made to do big things. "A word to the wise is sufficient."

Artistic Retouching is the title of a very complete text-book on the subject from the pen of Clara Weisman, published by H. A. HYATT, of St. Louis. Miss Weisman has gone very carefully into the subject of retouching, and has handled it in a thoroughly practical manner, touching upon modelling and etching, with chapters on Art and Nature, and Art and Photography, Chiaro-oscuro, Composition, Style, and Individuality. The book shows definiteness of purpose and a familiarity with the subject that should commend it to photographers desirous of improving their knowledge of the underlying principles of this most important branch of studio work. The book is published at $2.50, postpaid.

THE attention of our readers is directed to the advertisement on another page of this issue relating to a new book on *Posing and Lighting in Photography*, by C. KLARY, of Paris, France. This book is printed in French, and illustrated with a large number of excellent half-tone reproductions from the work of well-known men, both amateurs and professionals. It is full of valuable suggestions to the student of portraiture.

THE Daguerre Photo Club, Conradhade 63, The Hague, Holland, announces an international photographic exhibition, to be held June 12 to July 24. The Secretary, W. H. Idzerda, will gladly supply information to photographers desiring to exhibit.

WE have received a copy of the catalogue of the *Fourth Chicago Photographic Salon*, a tasteful publication, giving a list of the exhibitors and their exhibits, with a number of engravings scattered through the text.

From all accounts the *Salon* was a successful affair, although the Photo Secession withdrew its exhibits at the last moment. We congratulate our Western friends upon their work and its outcome.

The Svenska Fotograf-Samfundets Tidskrift, the official organ of the Swedish professional photographers, published at Stockholm, is a monthly publication, in the Swedish language, devoted to the interest of the craft. It is well printed and illustrated with good half-tones representing the work of many of the leading photographers of Sweden and Norway. Its contributors are known to be men of position and ability in their own country, although the language in which they write is not familiar to the editorial staff of this MAGAZINE. The journal is an old-established one and bears an excellent reputation in the photographic literature of the old country.

The A. M. COLLINS MANUFACTURING CO., of 527 Arch Street, Philadelphia, Pa., have placed upon the market an extremely delicate and beautiful series of mounts particularly adapted to use with platino paper. These mounts are known by the name "Brunite," which marks the special quality, while they are issued under several different names which distinguish the different panel effects. Those of our readers who are interested in a most attractive mount for platino matt surface prints will do well to write to the manufacturers for samples.

THE new catalogue of the Bausch & Lomb Portrait Lenses is just received from the publishers and contains a fund of information of interest and value to those desiring to select intelligently lenses adapted to all requirements of photography. A special feature of the catalogue is to be found in the new series of *f.* 2–2/10 portrait lenses and the *f*/5 lenses fully described in the catalogue. In this the manufacturers have introduced three new features of convenience to the photographer, also fully described in the catalogue, copies of which will be mailed upon request.

The catalogue is illustrated with diagrams and half-tone reproductions illustrating the advantages to be derived from this most excellent objective.

PORTRAIT OF A LADY

By Geo. H. Hastings, Boston, Mass.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. JUNE, 1904. No. 570.

REPRODUCTIONS OF OLD MASTERPIECES.

BY THE EDITOR.

In studying the work of the master painters of portraiture it will be found almost, without exception, that the originals are strong in the drawing of masculinity. graceful, dainty and fascinating in the delineation of feminine beauty, and rich in the coloring of background and accessories. Many of them, even after the lapse of centuries, are full of warmth and rich in flesh tones and draperies, glowing with local color as the faces are modelled by the lights and shadows playing across them. Facial expression, anatomical accuracy and the subtle play of light and shadow are interpreted by the old painters through the medium of color so pure as to withstand the attack of time, and at the same time so delicate as to tinge the cheek and nostril with the apparent glow of living, pulsing youth or middle age. To the photographer the study of such originals should be of untold value, but, unfortunately, only a few of us are ever privileged to view these masterpieces face to face. We must get our inspirations from some cold, meaningless reproduction, which, unfortunately, in many cases, does not reproduce. At best, our reproductions, or, at least, such as are based on photography, are imperfect in the translation of tone and color value, while the ordinary photograph, unassisted by orthochromatic plate or color filter, is little more than a travesty upon art.

Is it then to be wondered at that there sometimes appear among us scoffers, who, gauging their opinions by their education, fail to find in these reproductions the inspiration they seek? It is not to be taken as a matter of surprise that men who have learned from their own experience the tonal quality of high lights on forehead, nose, and cheek, refuse to accept as their ideals of perfect reproductions pictures in which these high lights are rendered in distinctly darker tones than the surrounding masses that they are intended to relieve.

It has been held that paintings reproduced by photography should present fair parallels with which to compare other photographs from life. The parallel does not, in fact, exist, and such a premise is fatal to the success of any student working upon it.

How often does it happen that the high light of a painted portrait is built up of color rich in crimson, red, or yellow, either one of which is, by any ordinary process, impossible of photographic interpretation as a high light. The parallel would only hold if the original were painted in some low key of color more nearly akin to the range of color presented in a photograph of a living model.

In such a subject the high lights, middle tones, and deep shadows are all present and may be reproduced as seen upon the model. But in pictures painted in a higher key the element of color is a fatal objection, and presents an almost impassable barrier to correct interpretation in monotone. It may only be obtained by the use of the most carefully sensitized orthochromatic plates, the most careful adjustment of color filter to each particular subject,

combined with intelligent manipulation on the part of the operator making the original negative.

Two things, then, seem to be essential if the photographer desires to gain the greatest possible amount of assistance from his study of reproductions from the work of the old painters. First, that he procure the *very best* reproductions obtainable at any cost, bearing the endorsement of artists capable of judging; and second, that before studying them for lighting, composition, and pictorial qualities, he study them most carefully from the viewpoint of common sense, reinforced by his own experience. Analyze critically every trace of light and shade or questionable feature or unusual perspective; imagine the original before him and decide whether the false or questionable note may not be traced to some false interpretation or imperfect translation of color in the reproduction. Reproductions of the work of the old masters, if viewed in this way and treated as translations only, and that by an agent acknowledged to be not infallible in correctly translating color into monochrome, may be of inestimable aid to the thinking photographer. He may draw from them inspiration and suggestion without limit.

If viewed as literal interpretations of the master's work they will prove dangerous rather than helpful, and the student following blindly the teaching of his reproduction will frequently find himself where many conscientious and hard-working photographers have been found before, dazed, bewildered and confused, and farther than when they started from a correct understanding of true art as exemplified in these magnificent specimens.

In conclusion, we would not be understood as in the least belittling the reproductions of these paintings, by whatever process they may be made, but rather as urging upon every student the importance of analyzing and deciding for himself, before going on with his study of the subject, how much of what he sees is truth and how much error.

CARBON PRINTS UPON ROUGH-SURFACED ETCHING AND DRAWING-PAPERS.

BY A. J. JARMAN.*

THE production of carbon prints upon rough-surfaced drawing-paper is attended with considerable difficulty, unless a proper method of procedure is adopted. Many photographers, both amateur and professional, have abandoned the production of these beautiful pictures because of their imperfections when completed, especially owing to an almost endless crop of shiny spots upon various parts of the print, caused by the nonadherence of the pigmented tissue upon the rough surface of the paper support. These shiny spots are nothing more nor less than minute air spaces in the hollows of the paper. Another cause of abandonment of this class of print has been the flatness in effect when finished, when the same negative is capable of yielding a print with more snap by almost any other method of photographic printing. Both of these defects can be avoided by proper manipulation.

There is a very important point to be attended to in the first place, namely: The sensitizing of the tissue in a bichromate solution of suitable strength. The best and most practical way to carry out this part of the process is to provide four stoneware crocks, each of two or three gallons capacity, and to make up the bichromate sensitizing solutions of various strengths, from 1 per cent. to 4 per cent., taking care to mark the crocks on the outside with the numbers 1, 2, 3, and 4, these numbers indicating the strength of the solution contained. Paint these numbers upon the crocks with asphalt varnish. There will then be no danger of the numbers being wiped or washed off. The sen-

* A number of prints submitted by the writer, and made by him on papers of different textures, demonstrate the practical value of his formula as worked out by himself. It carries all the good qualities of a carbon print combined with the richness of a rough-surfaced support.—[ED. W. P. M.

sitizing solution for this class of work must be of such a nature as not to interfere with the solubility of the tissue. The sensitized tissue must retain its solubility unimpaired for a week or more. The tissue is too often blamed for insolubility, when the real fault lies with the sensitizing solution. The following formula is a good one. In the hands of the writer it answers every requirement. Where water is mentioned, *distilled water* is intended. Ordinary water contains too many impurities to be relied upon for making up the sensitizing solution. The following is for a 4 per cent. sensitizer:

Bichromate of Potash (c. p.)	4 ounces.
Carbonate of Ammonia	80 grains.
Water	96 ounces.
Glycerine	30 drops.
Salicylic Acid	30 grains.

The salicylic acid must be dissolved in four ounces of boiling water, then added to the above. Just as soon as all the salts are completely dissolved the solution may be filtered into the crock and kept covered, away from daylight, until required for use. Of course, all that is necessary to prepare a 1 or 2 per cent. solution is to use one ounce or two ounces of bichromate of potash in place of the four ounces given in the formula. The object in employing these sensitizing solutions of variable strengths is to sensitize the tissue to suit the negative. If the negative is somewhat thin and weak, the No. 1 sensitizing solution must be brought into use, because the tissue that has been sensitized in such a solution will produce a print possessing considerable contrast, this being necessary for the above class of negatives. If the negative is somewhat hard and possesses considerable contrast, the 4 per cent. solution must be employed to sensitize the tissue. It will be better if this tissue has been sensitized two or three days before use, as it will thus give softer prints. All these points must be attended to if it is desired to produce good work upon rough-faced papers. If the etching paper has been purchased with its surface already prepared, some little time will be saved in its preparation. It is advisable to know how to prepare the surface of these papers so that any kind of drawing-paper may be used. Beautiful effects can be obtained by using Whatman's hot-pressed drawing paper as a final support, also the cream-colored crayon drawing-papers of various grained surfaces. In preparing paper for one's own use it will be necessary to make up the following substratum. Heinrich's hard gelatine is excellent for the making of the substratum for these papers, although any good quality of hard gelatine will answer.

Gelatine (Heinrich's hard)	4 ounces.
Water	50 ounces.
White Sugar	½ ounce.

Soak the gelatine for about one hour, add the sugar, then melt the gelatine by placing the vessel containing it into hot water. One of the most useful and convenient utensils to employ for this purpose is an oatmeal kettle, where the water is allowed to boil around the inner vessel. A good quality enamelled-iron kettle of this kind can be purchased at any hardware store for seventy-five cents. Have the following solution at hand for use when the gelatine is in a thoroughly melted condition:

Chrome Alum	30 grains.
Water (hot)	2 ounces.

Pour this chrome alum solution, drop by drop, into the hot gelatine mixture, and stir vigorously while the water is boiling around the inner vessel. This proportion of chrome alum should be sufficient to produce partial insolubility in the gelatine. If the mixture should thicken up, add one dram of glacial acetic acid, not more; stir well until the gelatinous mixture is clear and quite limpid. Filter this mixture, while still hot, into a suitable tray. Have the sheets of paper to be coated ready at hand, with a thin strip of wood attached by wood clips at the top and bottom of each sheet, the strips being upon the *back* of the paper. Now hold up the sheet of paper, bent like the letter J, and allow the lower end of the curve near the tips of the clips to touch the gelatinous mixture. Then by raising the left hand, and at the same time lowering the right hand, allow the paper to pass over the liquid three times. Turn the paper up at an angle so that the excess of gelatine may run back into the tray by allowing one corner to touch the tray, taking care to

avoid air bubbles. Now turn the paper over and lay it, back down, upon clean blotting paper, so that the gelatine becomes evenly distributed. Examine the surface for air bubbles, and if any are found, dip a small camel's-hair brush into the gelatine mixture and cover these spots or holidays formed by their presence. The gelatine having now become nearly set, the sheet may be suspended in a suitable place, away from dust, to dry. Cut as many sheets of paper as may be required. It will keep any length of time before use if kept dry, especially if half an ounce of a 10 per cent. solution of carbolic acid is added at the time of making up the gelatine mixture. This mixture is the substratum that is necessary for the preparation of all the ordinary drawing-papers.

Whatever quantity of substratum is left over should be returned to the vessel in which it was prepared for future use. Assuming now that all the sheets of paper are dry and that several carbon prints are to be developed upon them, proceed as follows (it is assumed here that the reader is acquainted with the general routine of carbon printing): In the first place, the prepared etching paper of commerce is used; cut it into the sizes required, mark the backs with lead pencil, then plunge the pieces into clean, cold water, and allow them to soak for five or six *hours*. If Whatman's or crayon paper is used, prepared as described, all that will be necessary will be to allow the sheets to soak for one hour in a 5 per cent. common alum solution, then rinse in cold water and soak for about fifteen minutes, also in cold water. The exposed tissue being ready for transfer, lay the etching paper, dripping wet, face up, in a tray of hot water, and allow it to soak for two or three minutes. Remove and lay it down upon the squeegee board, face up. Have ready at the same time some of the melted gelatinous substratum, filtered through clean cheese-cloth into a glass tumbler. Pour the warm mixture upon the middle of the paper in a small pool. Take the exposed tissue, which meantime has been soaked in clean water, and lay it down with care upon the centre of the paper. Place a piece of India rubber cloth (smooth side up) upon the tissue, and apply the squeegee, at first gently, from the middle outward, gradually increasing the pressure by slow, heavy strokes. This operation must be carried out thoroughly to insure a complete contact between the rough surface of the paper and the tissue. The above operation is the same in every instance with whatever paper used. The sheets of paper, with the tissue attached, must now be laid aside between sheets of blotting paper for twenty minutes to half an hour. When this time has elapsed take one of the sheets, place it in cold water to soak for a few minutes, then place it in a tray of warm water for development. Do not increase the temperature too much. The development of carbon prints upon this class of paper is slow; therefore, time is required to obtain perfect results. As soon as the tissue begins to show the color floating away from the edges it may be lifted by holding the paper down with the left hand and gradually removing the tissue with the right hand. Throw this aside, then with the right hand throw the warm water over the surface of the print. Continue this operation, with intermittent soaking, until the print is fully developed. Never use the water too hot for development, as it may cause the print to blister. Now wash the print in a gentle stream of clean cold water, then place it in a 3 per cent. solution of common alum, filtered, and allow it to remain in this for ten minutes. Wash in three or four changes of clear water, giving five minutes time for each washing; then hang the print up to dry. When dry it will be observed that there is perfect contact in every part of the print, and that the print is as perfect as it is possible to make it by the single transfer process. It will be observed that there is required a longer soaking of the paper to receive the picture. This is necessary to make the paper very soft and pliable, so that the softened tissue may be pressed well into the depressions of the surface. By this means, in conjunction with the addition of a coating of warm substratum, perfect contact is obtained. To obtain prints by the double transfer process upon these rough-surface papers, exactly the same method of procedure is adopted, only in this case the carbon print upon its flexible support must also be

allowed to soak in cold water for three or four hours, so that the paper forming the basis of the flexible support also becomes very pliable. The secret of making successful work upon the papers described lies in making the final support as pliable as it is possible to make it without injuring the structure of the paper.

When the print is complete and the spotting necessary has been attended to, or the working-up of any part of the picture by means of the brush and color, it will be found that, whether the print has been mounted or not, a coating of albaline will make the carbon print not only uniform in surface, but will make it waterproof at the same time, without in any way interfering with the beautiful semimatt surface. Unlike the general run of varnishes, this material is not affected by any of the usual solvents; it is as near acid proof and alkali proof as it is possible for a varnish to be; it is also colorless, and is in every way an excellent protector for the surface of carbon prints when these prints are made upon paper, glass or porcelain, but not upon celluloid, because the latter material is dissolved by it.

ON THE DISCOLORATION OF BROMIDE PRINTS,

With an Incidental Consideration of the Acid Fixing Bath.*

BY A. G. FIELD.

There are several sorts of stains or discolorations by which some bromide workers are frequently troubled, and some from which few bromide workers wholly escape although some workers will assert that they never had any stains or discolorations in their bromide work. In order to obtain certain results in bromide prints one may use a very active developer which will be very prone to produce stains; and I think you will find that those who never get stains make it a rule never to use a developer that does not suit their particular requirements. To distinguish the various discolorations is the first step; to assert the supposed causes is the second step; and, in the third place, I propose to speak of a proper mode of working to avoid each kind of discoloration. These are:

(*a*) Grayness; *slight* gray fog over print; grayish whites.

(*b*) Yellowness of the print.

(*c*) Gray-brown discoloration.

All these are seen most upon the whites, of course, and are totally distinct from wrong color or "tone" of the image.

The gray fog is the least often met with and the most easily prevented. It arises from exposure to light while the paper is still in the sensitive state. An "unsafe" colored developing light may produce it before development, or the faintest reflection of white light from the walls and ceiling while changing and charging the frames, but so will an unsafe light during development. White light—at least with some papers, during fixation; and, in fact, until the final salt or salts removed in the first washing after the fixing bath—will produce this fog. Some papers are less prone to yield gray fog under these conditions, while others are particularly prone to produce it.

Yellowness and gray-brown fog are the two discolorations now to be considered. The two are clearly distinguished in most cases, but for those who have only suffered from one of the two colorations a test which I will give will suffice to make the distinction clear. The yellowness is a development stain. It arises from the precipitation of brown products of oxidation in the developer into the film of the paper during development. The stain will be more readily produced in proportion to—

(1) The age of the developer.

(2) The duration of the development.

(3) The rapidity of the particular developer in oxidizing.

(4) Exposure to the air during the development.

(5) The sensitiveness of the film to coloration.

* Read before a recent meeting of the Royal Photographic Society.

The statement in regard to the last item I can justify by the fact that many papers give the stain continually, unless very short development and very fresh developers are employed; other papers are discolored by amidol, but not by metol-hydroquinone developers. Again, most papers show stain, if any, only later, on inspection by daylight, but a few yield it visibly at an early stage. This yellowing is undoubtedly sensitive to light. It can, for example, be latent, and be rendered visible later by an intensifying action of light.

The gray-brown discoloration is a sulphur stain, and quite distinct from the others. This leads me to suggest a method of working, and I will deal first with discoloration (*c*).

The acid fixing bath stops development just the same as the "dead stops" sometimes used with bromide and gaslight papers. It acts as a clearing bath, as well as a fixing bath, to clear any development stains which are not in some cases soluble in plain hypo. But it has the possibility of danger within it, owing to the addition of an acid to hyposulphite of soda, and the liability to this danger is what causes many to recommend a plain hypo bath for bromide and chloro-bromide work. A plain hypo bath works very well, although not acting as a "dead stop;" the development, therefore, requiring to be stopped early, but the accumulation of developer therein may lead to stain soon afterward. The plain hypo bath only works well if the developer is one of the non-staining kind, and if the conditions of development are correct. It would, therefore, be better to learn how to make a safe acid fixing bath and to use it when we desire it. The danger is that any strong acid is liable to decompose the hypo and deposit sulphur. Now to avoid the danger. Great men—men of undoubted greatness in chemical and photographic knowledge—have put forward a bath made with sulphuric acid. This, however, I think is not wise. I think that sulphuric acid is about the worst acid to effect this splitting up tendency; glacial acetic acid is a far better acid for this purpose; while sulphurous acid is supposed not to act in this way on a hypo bath, and, as far as can be seen, this acid may safely be used. The danger of decomposing the hypo and depositing sulphur by the strong acid may generally be obviated or minimized by dissolving all the constituents of the formula separately, and then adding the acid constituents slowly. It is dangerous with any strong acid to pour it into a very strong solution of hypo, particularly one in which there are any particles of hypo still undissolved by water. In my experience, the safest way—an absolutely safe way, in fact—is to import a salt, supersaturated with the acid, into the bath. The cheapest salt of this kind is sodium bisulphite. If sulphurous acid is added in the form of bisulphite of soda (a salt containing the acid in its free form) it is so safe from the decomposing tendency that many firms are selling a dry mixture of the hypo and the bisulphite, to be, of course, dissolved in water together. For plates the best fixing bath is a solution of hypo in water. An acid bath is, however, useful to prevent development stain of hypo and to stop the development. For negative films, an acid bath is at no time advisable, owing to its great tendency to separate the gelatine from the support; although a solution made up in alum might be expected to obviate this. But negative papers need an acid fixing bath, to avoid a trace of stain on the paper support, the metabisulphite hypo bath being a particularly good one for these paper films. Bromide papers particularly need this bath, as, their effect being positive, and the image being viewed against the white paper, the presence of any vestige of stain is objectionable. A "toned" paper, or colored base, is permissible, because the degree and nature of the coloration is under control, as a fortuitous color cannot be.

Now we turn to the yellowness, which has its origin in development, and not in the action of the hypo or acid-hypo. Given the causes, the remedy is clear. Use a developer which does not readily oxidize, like metol-hydroquinone, or, if a more active developer is desired, even though it be constitutionally more addicted to stain, let it be freshly made and quickly used. Let all developers having a tendency to stain have a sufficiency of sulphite, to keep the products of oxidation suspended, and not precipitated in the film;

and add the reducer dry at the time of use, or only filter through cotton wool when about to use. Let the exposure be sufficient, so that the immersion in the developer need not be excessively prolonged. Avoid exposing the print unduly to the action of the air. Mr. John Mallia's view is that yellowish whites are most often caused by repeatedly taking the prints out of the developer to examine them during development, thus giving rise to oxidation of the developer on the gelatine film being brought into contact with the air. Work with plenty of light, so that the prints may be properly examined without their removal from the developer. Let the fixing bath be fresh; that is to say, free from developer discoloration.

With regard to the graying discoloration, knowing that exposure to actinic light is the cause of graying, it is clear that the graying will be avoided if the operator tests the light of the window used when changing the paper; also the developing light; keeps all white light from the prints while fixing; keeps them free from white light for a few minutes in the first washing water—in fact, until the soluble salt is washed out into the water. Of course, imperfect fixing should be guarded against, although three minutes has been said to be sufficient for effecting the fixation of bromide prints. Do not blame the products of the manufacturers. As a rule, I think, we may take it that the plates, films, and papers obtainable nowadays are properly made and correct; but sometimes they are fogged by light at the factory; and some of the rapid papers made abroad, and sent over to this country by sea, come "ripened" and most sensitive, even in the high lights of the image. There are those who never find white light fogging their prints in the fixing bath; indeed, several people disbelieve that the fixed print can fog. We will deal with this fog for a moment. Mr. Horsley Hinton says of plates that they can be washed and then fixed in a white light freely, but he does not specify any particular make of plates or paper, and the statement appears to be too general. Mr. Arthur W. McCurdy, of the Franklin Institute, Philadelphia, said just the same thing, and that thorough washing before fixing is a *sine quâ non*. But here again no particular kind of plate is mentioned. Mr. V. C. Warner confirmed these statements. He used Bradley's "Extra Speed" plates, and he concludes: (1) A plate or film washed free from reducing agent used in developing may be fixed as well in light as in dark, and at the convenience of the operator; (2) before fixing it can be exposed to bright, white light, then redeveloped—in a weaker developer, till the entire surface is veiled—with no reduction of detail, only more printing density; and the result will be free from fog. In my opinion, however, all this is too general; for all these gentlemen lay down one statement for all films. But is this statement correct? Some emulsions will certainly fog under the conditions mentioned. Lumière plates, for instance, could not be taken into white light immediately after development without fogging, and the same is the case, I believe, with Austin Edwards and Ensign films. And so also in the case of bromide paper; all bromide prints will fog if exposed to white light before fixation, and several will fog in the fixing bath and until the soluble salt is dissolved out in the first washing water. Associated with this salt may possibly be some unaltered, or only slightly altered, yellow silver bromide.

A test to distinguish the sulphur stain from development stain is as follows. Mercuric chloride—ordinary bleaching solution for intensification—will soon affect the yellow stain, which contains no sulphur, turning the stain white in a short time; but the gray-brown sulphur fog or veil is only very slowly affected by mercury, which does not entirely bleach it, but only makes it lighter. The yellow development stain is a compound of oxide of silver with the product of oxidation in the developer. This compound is insoluble in plain hypo. Under certain circumstances this yellow stain may pass, by the action of hypo, into a sulphide which is insoluble. Both these facts are arguments for an acid-fixing bath.

The old-established idea of the reaction of the crowded fixing bath is possibly an incorrect one. It is perhaps incorrect to say that all silver haloid passes into a double silver salt. Some part of the haloid may be but triflingly modified, and remain

till perfect fixation is finished, in nearly its original state.

And now to speak of developers that tend to stain. It would almost seem as if the tendency to give yellowish stain were in some way associated with the amido radical in the constitution. Amidol is found to readily stain, and several others containing NH_2 in their formula are also prone to stain. Those of the new synthetic reducing compounds which have not the NH_2 radical are free from this tendency (the one exception as far as I know being pyrogallol). I throw this out merely as a query for the learned to answer. It is, of course, beyond the province of a mere worker like myself.

The acid-hypo bath is used for plates to avoid blistering, and also to prevent stains in the film, chiefly because of the use of the alkaline carbonates, or because the concentration of new developers (caused by use of large quantities of sodium sulphite in conjunction with alkaline carbonates) tends to blister.

The sulphur difficulty is a great difficulty, as much in the acid fixing bath as in the notorious combined toning and fixing bath. Theoretically, the addition of acid to the hypo must produce the liberation of sulphur; an acid salt should, of course, act likewise. This formation is readily observed by adding in a test tube a crystal of citric acid to some hypo solution, and then gently heating it, when a white, curdy precipitate will gradually appear. If only a small quantity of acid be present, milkiness ensues, and the precipitate separates more slowly. The sulphur difficulty is much delayed (but not, I believe, prevented, when an old solution is used) if the acid and the hypo are separately dissolved, allowed to cool, and slowly added together, although a long delay before use, seems to make the action very great. When alum is used with hypo many dangers arise, the separation of sulphur being almost inevitable.

With silver present, the sulphur precipitated in the film is very ready to form silver sulphide. With interrupted fixation, some of the sensitive salts may be left in to fade, discolor, or to perform a multitude of reactions. But acid directly added to alum and hypo solutions may effect many changes, good or bad. The danger is that a strongly acid substance is liable to decompose the hypo, liberating sulphuretted hydrogen, and depositing sulphur; or it will liberate hypo-sulphurous acid, which splits up into sulphurous acid and sulphur. But the process of the deposition of sulphur is very slow, while the presence of the sulphurous acid, as well as the hypo-sulphurous, and the excess of the hyposulphite of soda, keeps the bath useful and the prints clean. The process seems to me to be that, when an acid-hypo bath is used it will eventually act in depositing sulphur. This process, however, is extremely slow; so slow, indeed, that we may ignore it in the early stages of the bath. That is why, in using the alum-hypo bath for sepia toning, it acts best when old, and worst when quite new. Conversely, it acts as an acid fixing bath best when new and worst when old.

A safe acid bath may be made according to this formula:

Hyposulphite of Soda	4 parts.
Metabisulphite of Potash	1 part.
Water	20 parts.

But the metabisulphite is costly, and the same result is obtained with bisulphite of soda. For plates we may have two stock solutions, made as follows:

No. 1.

Hyposulphite of Soda	1 lb.
Water	50 ounces.

This should be well dissolved; for, if we are going to have any danger at all, it is most likely to occur when the hyposulphite is not in perfect solution.

No. 2.

Bisulphite of Soda	4 ounces.
Water	20 ounces.

This should be kept in a stoppered "Winchester." For use, one bulk of No. 2 should be added to ten times the quantity of No. 1. For papers—bromide, etc. —dilute with from 25 to 50 per cent. of water. If using amidol, add it dry at the time of use, to avoid stain. Another way is to dissolve it in part of the water used, and filter the solution with the other dissolved constituents. An excellent formula for good black prints is:

Sulphite of Soda . . .	1½ ounces.
Bromide of Potassium . .	15 grains.
Water	15 ounces.
Amidol (added at time of use)	60 grains.
(Or 4 grains to 1 ounce)	

This will work all the better if the sulphite is also freshly dissolved.

Another formula for soft gray prints is:

Sulphite of Soda . . .	3 ounces.
Water	80 ounces.
Metabisulphite of Potash .	12 grains.
Bromide of Potassium . .	8 grains.

Filter 1 oz. bottle amidol into this by part of the solution.

The lecturer then showed some prints to illustrate his remarks. One of the prints in which very strong gradation was required had been produced by a non-staining developer. In the case of one of the prints the amidol developer as above had been used, the result being a perfectly unstained picture. White, clean prints could be produced by the metol-hydroquinone developer, but this was a somewhat harsh developer. While amidol produced softness in a print, as found in platinum prints, it need not necessarily produce yellowness. —*Photographic News.*

LARGE TRAYS AT ONE-TENTH THE LIST PRICE.

BY H. F. SWARTZ.

THE poverty-stricken amateur often wonders why large trays cost such colossal prices, and his wonder is sometimes accompanied by irreverent comments on the dealer. But there is a reason, and it is entirely just. The price depends upon the quantity of material required to make any given size of tray, and upon nothing else. Making no allowance for increased thickness, the amount of material depends solely upon the *area* of the tray. Area, our school teacher once-upon-a-time diligently instructed us, is found by multiplying length by breadth. If, then, a tray 5 x 7 inches costs 70 cents, what should one 18 x 22 inches cost? Sounds like the primary class, but solve the problem, and there will be no more kick on extortionate prices for large sizes; 5 x 7 is 35 square inches, and 18 x 22 is 396 square inches, or over eleven times as large, therefore the 70 cents should be multiplied by 11, giving as a proportionate price, $7.70. The catalogues actually show a reduction of fully $1.00 on this size.

The only practical way to reduce the price on medium and large trays is to make them one's self. The writer has a tray, 18 x 22 inches, strong, clean, acid-proof, and *water-tight*, the entire cost of which was 65 cents and 2 hours' labor. The tools used were a saw, a screw-driver, a small plane, and a small drill to bore holes for the screws. The materials were a sheet of the cheapest window-glass of the required size, a handful of round-headed screws, four angle irons, furnished by the hardware man for 5 cents, some half-inch soft wood, 2 ounces of thin sheet rubber, and a small can of asphalt varnish. The making of a tray 18 x 22 will be described, and the reader can readily alter the dimensions for other sizes.

The sheet of glass is 18 x 22 inches; it may be of the very cheapest, poorest quality; simply take care that it is not too badly curved. Get a strip of good, clean, soft wood of any kind, 2½ inches wide, ½ inch thick, and 12 feet long. In addition, get another piece of the same thickness, 6 inches wide and 4 feet long. From the hardware store secure four cast-iron angles, bent so as to have the edge up instead of the side, *i. e.*, like a hinge. Also buy 4 dozen round-headed blued screws, ⅞ inch long; these in addition to the screws accompanying the angles, which should be only ½ inch long. From the rubber store buy a strip of the thinnest packing rubber, 2 inches wide and 22 inches long. The thickness will be about $\frac{1}{32}$ inch. A small can of asphalt varnish completes the list.

Of the lumber, cut two strips, each 22 inches long, and two others, each 17 inches long. These make the sides of the tray. Cut the ends good and square and join them as shown in Figure 1. Apply

asphalt to the joint before bringing together, and then clamp with the angle irons securely in place Care is needed to see that the lower edges of the joints

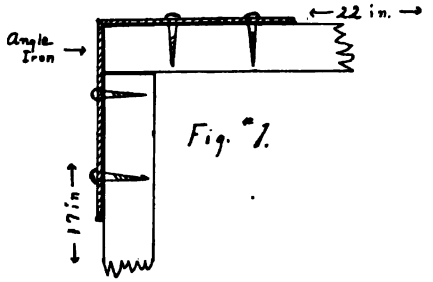

Fig. 1.

come smoothly together. Figure 2 shows the way of putting this together. The point requiring care is marked by the arrow; let there be no strip there. When

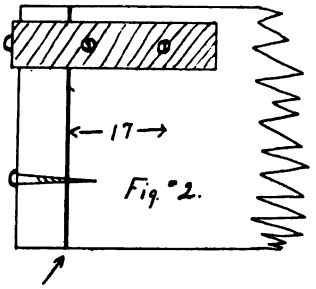

Fig. 2.

this frame is completed, varnish thoroughly, and let it dry over night.

Cut the rubber into four strips, ½ inch wide. These strips serve as washers between the frame just made and the sheet of glass. Lay them carefully on the edge

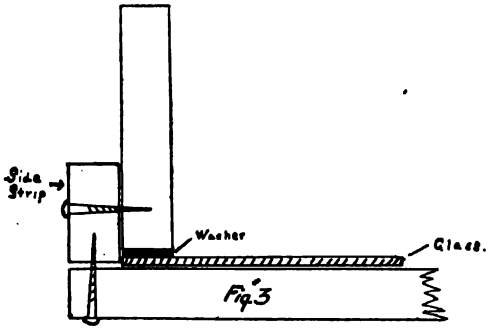

Fig. 3

of the frame while the varnish is still wet, making the corners carefully.

We must devise some way of attaching the glass bottom, to make a simple and water-tight joint. Figure 3 shows in profile the method. Cut two strips of wood, each 22 inches long and 1¼ inches wide, and likewise two similar strips each 19 inches long. These constitute the side strips shown in No. 3. They are screwed on the lower edge of the main frame, projecting downward a distance equal to the thickness of the glass. The frame is turned upside down and the glass put in place. It is now held in place and drawn tight against the washer by screwing on cross strips, arranged as indicated in Figure 4. This figure shows the tray in-

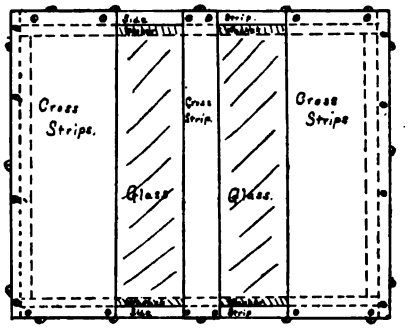

Fig. 4 Bottom of Tray.

verted. The positions for the screws are indicated clearly. It is apparent that the pressure of the glass and washer against the frame can be perfectly controlled by the screws in the ends of the bottom cross strips. The slightest leak can, therefore, be immediately remedied by giving a turn to the adjacent screws. Before finally screwing the glass into place, give all the wooden parts a good coat of asphalt, and let dry. Then fasten up the bottom, and by a very little adjusting of the bottom screws a perfectly water-tight tray is secured.

A few advantages aside from economy and ease of construction are that in development a plate may be viewed through the open spaces in the bottom without lifting it out of the solution; and again, the glass is well protected, yet in case it should be accidentally fractured, a new one may be put into place simply by removing the bottom cross-pieces, and finally, at all times, one has perfect protection against leakage by the simple turning of a screw. The asphalt protecting covering may be easily removed from time to time as required.

LARGE PHOTOGRAPHIC DISHES.

BY H. E. HABERSHON.

WHEN we consider the perfection of the modern photographic lens and the cheapness as well as the ease of manipulation of bromide paper, it must be owing in a large measure to the want of dishes that so few care to undertake enlargements of a greater size than 12 x 10 inches. The weight and expense of the dishes required for any work of a larger size than this is doubtless the primary obstacle. Therefore I purpose to describe how to make dishes of a large size, which, although principally constructed of wood, will be found quite as serviceable as any others not intended for heated solutions; and they have moreover the advantage of being easy to make, light in weight, unbreakable, and of an expense but a small fraction of the bought ones.

I have in past years tried nearly all the makeshift dishes described in the various text-books and photographic periodicals. Developing a large sheet of bromide paper laid on a sheet of glass or on a board I have found anything but a success, more often than not leading to stains, tears in the paper, finger-marks, etc. Paper and cloth-lined trays very soon become decayed, leaky, and useless. Large size wooden dishes with glass bottoms also soon become leaky, beside being heavy, fragile, difficult to make, and expensive if purchased. Large size all-wood dishes are soon useless, as they invariably crack across the bottom. Apart from the item of expense, the worker will find that the enamelled iron dishes are the best for all-round use and wear.

As the result of my experience, I have two kinds of home-made dishes that may be said to be satisfactory; they are lasting, and answer all purposes except where heating them or using hot solutions is required.

The first kind is a very thin tray of zinc or tin, which, if the photographer can use a soldering iron, he can probably make himself. This fits somewhat tightly into a roughly made wooden tray of which the bottom is made of laths, with air spaces between them, both tray and casing being well painted inside and out. It is of advantage to bring the tin sides up above the wood casing, and bend them over the wood and fasten them along the edge with a row of gimp pins.

The second kind is, I believe, the best all-round dish that can be made. It will be found very easy to make, lasting, light, unbreakable, and watertight, while the cost is trifling. Mine, made in this manner, are for enlargements from 20 x 16 inches to 30 x 22 inches. They consist of wooden sides, an oil-cloth bottom, with a wood bottom underneath this. I will give short instructions for making a 21 x 16½ inch dish (inside measurement). My larger dishes have somewhat thicker sides. It will be found very little extra trouble or expense to make a set of three or four dishes at the same time. My wood for the ends and sides respectively is ¾ inch and ⅝ inch good planed deal. This is sawed into strips (2¼ inches wide a good width), and is planed up true. The requisite number of pieces for ends are cut squarely off from ¾-inch wood, and each 16½ inches long; and for the sides a similar number from the ⅝ inch, each 22½ inches long. Some glue must be previously swelled in cold water, and as much of the water squeezed from it as possible; this is just covered with boiled linseed oil and melted in a glue-pot. Having well glued the ends of the 16½ inch pieces, the 22½ inch pieces are screwed to these to form the four sides of each dish. (Put three screws to each corner; No. 4 1½-inch screws are suitable.) The oilcloth is cut ½ inch larger all round than required to cover the bottom. The edge of the wood sides having been thickly glued, the oilcloth is laid on with its face side inward. It is tacked to the edges by ⅜-inch black gimp pins, placed about 1 inch apart, care being taken to get it quite flat and taut. This can best be done by tacking it with three pins about 1 inch apart in the centre of one edge, and then with a pair of pincers pulling the oilcloth taut to the centre of the opposite side and inserting three pins there, and tacking the end-sides similarly in the centre, the whole being finished by adding tacks symmetrically from the centres of the edges toward the corners.

The dish is then reversed, the exuding glue wiped off, and the superfluous edges of oilcloth cut off flush with the sides. Previous to this, the wood for the bottoms, which may be quite common and about ⅜ inch thick, should have been smoothed with the plane and the edges shot and painted one good coat of paint on one side and both edges. Enough lengths of this are cut to make the bottom. These lengths are pinned together at the edges with double-pointed nails, so that the whole will hang together as one piece, care being taken to keep the painted side as level as possible. This painted side goes against the back of the oilcloth, and is nailed on with 1½ inch wire nails, placed about 2 inches apart, a little care being taken at the corners where the screws come underneath. The dish is then well painted inside and out. When the paint is dry and hard, the inside is painted with a chemical-resisting paint or compound. I find either bath enamel or Brunswick black answers all purposes. The dish is now complete, and will be found practically indestructible. When worn and stained, scrubbing with Brooke's soap and another coat of enamel will always restore it as good as new.

A short length of lead pipe bent into a siphon is a handy means of emptying these large dishes, as they will be found difficult to empty by pouring.—*Amateur Photographer.*

TRANSLATIONS AND ABSTRACTS FROM THE GERMAN.

BY HENRY. T. WEED.

SOLUBLE CHLORIDES IN GOLD AND PLATINUM BATHS.

Prof. Namias, in the *Revue Suisse de Phot,* says:

It is important, in the use of gold and platinum salts for toning silver prints, to work in such a manner that the best possible results may be obtained with the smallest quantities of these precious salts.

In the composition of toning baths or in the treatment of prints previous to their toning, a rule which appears to me to be of the greatest importance is frequently disregarded. So far as I am aware attention has not been called to this rule. In order to obtain the best results with the smallest amounts of the precious metals it is necessary to carry on the gold or platinum toning in baths which contain soluble chlorides, or before the toning to treat the prints with a solution containing chlorides. The latter has often been recommended, but little used, because it was believed to weaken the print, and its usefulness was not sufficiently understood.

The addition of a soluble chloride to the bath is, however, simpler and more to be recommended. To show the usefulness of this, consider for example a paper containing silver citrate. The coating of this paper contains chloride of silver and also citrate of silver. After printing in the lights and half-tones a considerable amount of unaltered silver citrate is present, of which only a small portion is removed by washing, while the larger amount comes in contact with the gold chloride solution. One liter of the toning bath contains as a maximum 1 gram of chloride of gold. If the ordinary brown gold chloride of acid reaction is used it is estimated that 1 gram contains about 0.35 grams of chlorine. When the prints are placed in the gold bath all of the silver salt which is not present as chloride combines with the chlorine of the toning bath and forms silver chloride, while at the same time the gold changes to gold nitrate, citrate, etc. But these compounds are very unstable, so the gold chloride quickly decomposes and the gold is precipitated in the bath, instead of on the prints.

Numerous researches and analyses have shown that every sheet of paper, no matter what kind, contains, at least ½ gram of silver in the form of silver nitrate or an organic silver compound, which quantity corresponds approximately to 0.16 gram of chlorine, so that after the

toning of two or three sheets all of the chlorine contained in the gold bath has been taken out, whereupon gold precipitates in the bath in place of continuing to tone. When we think that with 1 gram of gold eight or ten sheets of paper can be toned, it becomes apparent how necessary it is for economical use and evenness of tone to have a sufficient quantity of soluble chloride in the toning bath; in order that some may be present, even when the maximum of prints are to be toned, sodium chloride (common salt) for instance, is one of the commonest. Five grams of salt is sufficient for a liter of bath. This addition is not only for the purpose of retarding the decomposition of the bath through the silver salt, but it makes the bath more lasting. The bath containing chloride of sodium will tone somewhat more slowly, but this is rather an advantage than a disadvantage.

In platinum toning the lack of chloride in the bath is even more injurious, for while with gold toning, the absence of chlorine leads to the rapid exhaustion of the bath, and, therefore, makes necessary a larger amount of gold, with platinum toning it leads not only to a larger use of platinum but also often causes spots.

I have found that the usual platinum bath of platinum chloride and phosphoric acid, even after the toning of a few prints, gives a yellowish precipitate (probably phosphate of platinum), which often causes spots on the prints. I have previously called attention to the inadvisability of the use of phosphoric acid in the platinum bath, and how advantageously oxalic acid may be substituted for it; the latter assists the reduction of the platinum salt to platinum, and at the same time avoids formation of spots. No matter, however, what variety of platinum bath is to be used an addition of 5 grams of hydrochloric acid or common salt per liter will not only diminish the loss of platinum but tend to avoid formation of spots.

Below is my formula for platinum toning:

Potassium Platinum Chloride	1 gram.
Distilled Water . . .	1000 grams.
Pure Hydrochloric Acid .	5 grams.
Oxalic Acid, crystallized .	10 grams.

I call attention especially to the fact that it is not always platinum which deposits upon the prints when the chlorine begins to be exhausted in the platinum toning, but it is insoluble platinum compounds which often alter the composition of the bath and which in the coating of the paper itself can form the yellow spots which are not superficial, but in the coating itself, and cannot be taken out. This occurs less frequently with oxalic than with phosphoric acid.

It is, therefore, of the greatest importance in practice, though seldom advised, to add to the bath, however composed, a sufficient quantity of chloride or hydrochloric acid to obtain the best results with the smallest quantity of gold or platinum. A previous treatment of the prints in salt water is less to be recommended, since this often influences the tones unfavorably.

PROF. ALEX. LAINER, in *Photo Mitteilungen*, 1904, Part V., gives a method for distinguishing prints toned in separate and combined baths. A strip of the print is heated over a hot plate or flame until a color change occurs. A change to yellowish or brownish color indicates that the print was toned in a combined bath, while a change to a rosy color indicates toning in separate baths.

H. BRIMIER (*Photo Gazette*, xvi., page 29) describes a backing for plates which he claims does away almost entirely with halation. Twenty grains of powdered asphalt is placed in a stoppered bottle, 60 c.c. pure benzol (not benzine), and 10 c.c. spirits of turpentine added, and the whole shaken from time to time until the asphalt dissolves. The glass side of the plate is then covered with the solution, pouring it on as if varnishing it. Should it prove too thick add more benzol. It need not be removed before development, as it is insoluble in the developer. After the negative has dried the coating may be scraped off, using a table-knife for the purpose, and the glass cleaned with a cloth dipped in benzol or turpentine.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

X. THE VALUE OF SPECIAL OFFERS.

WHEN a man has something good to talk about he is justified in talking about it. Many men do a great deal of talking about things that do not deserve it, but in the photographic studio there is ample opportunity to say much and to say it well, and to back it up with a practical demonstration that the thing talked about is worthy of that which is said of it. The special offer in the photographic studio has, in this case, no bearing whatever upon cut rates, ticket schemes, or other plans to lower prices. It is simply used as a means by which to bring the photographer's name frequently before the people of his community, but not in any cheap sense. It should, rather, be made use of to raise him in the popular esteem, to make the work of his studio more valuable, rather than less so; to set him down in the public mind as a man of advanced ideas and progressive business methods. The special offer, as used in this article, will refer first, last, and always to those classes of work which depend for their attractiveness upon the quality, novelty, or some other attribute of the work itself, rather than prices. There are many times during the year when, for one reason or another, the work of the studio becomes slack, and it seems imperative that something be done to stimulate an influx of orders to tide over what will probably be only a temporary period of quiet. It is on such occasions as these that the special offer should come to the front and be put into use, with the idea of accomplishing this end. The offer should be made to fit the occasion, not the season to fit the offer. The nature of the offer must vary widely in different localities and under different circumstances. In one place or season it will be a special size of negative printed upon some selected line of paper and mounted in some special manner on a certain specified mount, at a given price. In other cases it may be a special announcement concerning enlargements from old daguerreotypes, prints, etc. In still another it may take the form of a special offer for groups, class portraits or some one specified style of work, which the season of the year or local conditions may serve to render attractive.

ENLARGEMENTS

The man to enlarge your portrait should be the one .·. .·. .·.

WHO TOOK IT

Not some irresponsible agent who only wants your money. I want your money, of course, but first I want your perfect satisfaction. This I guarantee. Will you examine my work in this line?

B. B. BLACK

Photographer **SALEM, N. Y.**

Whatever the announcement may be, or however the special offer may be framed, it should be made secondary in importance to the regular work of the studio, and should not be allowed, under any conditions, to crowd out the better class of work, nor to interfere in any way with the comfort, convenience or whims of the regular patrons of the studio. Let the special offer serve primarily as a reason or excuse for addressing a large number of readers, either through the columns of the local paper or, better still, through a circular letter or special medium sent by mail. Let it tell its own story plainly, concisely, and attractively, and there let it stop. Do not try to crowd into the special offer a complete description of the facilities of your studio and the thousand and one things that you wish the public to know and grasp. Treat of these in detail at another time and let the speeial offer be unhampered by any other announcement than its own. If it serves its purpose opportunity

will be presented at the studio later on to do the rest.

STYLE AND TASTE

in framing is

MOST IMPORTANT

A print, no matter how fine, is incomplete until properly framed.

A PERSONALLY SELECTED STOCK

Of all that is newest, neatest and best in **FRAMES AND MOULDINGS,** including ovals, circles, squares and special designs, enables me to offer.

EXCEPTIONAL VALUE for the Money

B. B. BLACK

Photographer **SALEM, N. Y.**

Occasion should be found or made for some such special announcement as above outlined several times each year. Its moral effect upon the community under whose eye it falls cannot but be good. It furnishes a means of persistent advertising, and gives a reasonable excuse for claiming the public attention from time to time. It should convey the impression that the photographer, in making the offer, lays before the reader an opportunity to obtain something out of the usual line, of good quality and of artistic merit, at a price, while it is not cheap in a sense of being of inferior quality, is one which will be attractive and can be made so by reason of the special run on that particular product.

Without persistency in advertising the most carefully prepared matter and the most expensive methods of placing it before the public may utterly fail. It is the constant harping upon one general theme of photography that brings the popular mind into a position to appreciate its claims, and the man who is most frequently and the most persistently before the public is the one whose business receives the best support from the public. Let every occasion be embraced that presents an opportunity for a special announcement along the lines above indicated, and let the announcement be framed with care and distributed with discretion.

An opportunity for such an announcement will present itself during the coming summer to almost every progressive photographer in the country on the occasion of his State or National Convention. The writer knows several men in the smaller towns who regularly announce through the columns of their local papers the fact that on such-and-such a day the gallery will be closed while the proprietor attends the convention, from which he will return with new ideas, etc. In every case where this announcement has been made it has resulted in an increase of business on the reopening of the studio. This is distinctly a good opportunity for a special announcement. The method by which it should be put before the people of a given community must depend, however, upon the conditions governing each studio.

In the larger communities it may to advantage form an excuse for a personal letter, which may be printed in imitation typewriter type, and mailed under full postage to every customer whose name appears on the books, or it may take the shape of an engraved announcement, or a more plainly printed card. It does offer a reasonable excuse for addressing every one of the customers and for keeping him or her in touch with the policy of the studio. It evidences progressive ideas and enterprise on the part of the photographer, not only in attending the convention and keeping in touch with all that goes to improve the work of his profession, but it also proves his interest in laying before his patrons the best that he can offer them.

Another occasion for the special offer may be found in many of the older established studios in which are stored away a comparatively large number of old negatives. These negatives have, in most cases, accomplished their mission and lived out their usefulness years since, unless by

means of some special offer they may be made again productive. They represent, in many places, a large part of the invested capital of the concern, and yet are allowed to remain in the vault or storeroom year after year, occupying valuable space and bringing in no returns whatever. There are ways by which such a stock of negatives may be made to yield a very considerable revenue from year to year if the matter is undertaken in the proper way. They must be made a special subject of communication from time to time, and a systematic effort instituted for the development of duplicate orders from them.

The time to do all this work is that time when, in the ordinary routine of the studio business, a season of quiet seems about to set in. If the means at the disposal of the ordinary studio are properly made use of on such occasions, there should be a material betterment of conditions all along the line. This betterment must not, however, be looked for from spasmodic effort or from any plan which has not been carefully thought out and well digested, and which includes the expenditure of a certain amount of money as an investment before returns can be expected. We find the special offer plan paying the advertiser in almost every other business; why not in photography? It is the special offer inducement that keeps alive an interest in the products of any establishment, that brings into it new life and new money, which, added to the income from the regular established patrons, results in building up a larger and a better business year by year. It is being tried by some, and with success. Why is it not more generally put into execution?

ITEMS OF INTEREST.

The Action of Water on Carbonate of Soda. Referring to the action of air on anhydrous salts, the following note from the *Amateur Photographer* is of interest and value: "Some salts, but not all salts, when crystallized from water, take up a certain proportion of water and form with it a solid dry compound. Thus, for example, carbonate of soda when crystallized from water, under certain conditions takes up considerably more than its weight of water, or to be more exact, 106 parts of carbonate of soda unite with 180 parts of water, forming 286 parts of crystallized carbonate of soda; hence it may be a matter of considerable importance whether carbonate of soda or crystallized carbonate of soda is used in making up a developer. The following may be mentioned as a curious fact in economics. The ordinary customer has a weakness for low prices, or prices that appear to be low, hence there is in London an immense retail demand for crystallized carbonate of soda, but practically no retail demand for carbonate of soda. The Lancashire manufacturers are far too astute to pay the railway companies for carrying water from Lancashire to London, therefore there are (or were recently) establishments near London where the water is added. Some salts, like potassium nitrate, silver nitrate, and potassium chlorate, separate from water in crystals which are anhydrous or free from water, so that in such cases there is no chance of error owing to the water of crystallization."

Reversing Ground-glass. It frequently happens, particularly in enlarging, that the photographer desires to photograph *through* the plate instead of *upon* it. For such cases the ordinary method is to reverse the ground-glass focusing screen in order to focus upon the same plane as that occupied by the film, but the plate is put in with the glass side toward the lens. This method entails a great deal of annoyance and loss of time, and may be avoided by the use of a drop of oil upon the ground-glass side of the focusing screen, to render it transparent, and by attaching to the plain side a sheet of tissue paper. The tissue paper occupies the same plane as that to be occupied by the film. It may be removed and the oil rubbed from the ground-glass side as soon as the purpose has been fulfilled.

BASHFUL SCHOOLBOY

By Geo. E. Tingley. Mystic, Conn.

THE BOUNDS OF A FARMER'S LIFE

By Geo E. Tingley, Mystic, Conn.

BELOW THE MILL

By Geo. E. Tingley, Mystic, Conn.

By Geo. H. Hastinge, Boston, Mass.

By the Randall Studio, New Haven, Conn.

By Eddowes Bros., New York

By Geo. E. Tingley, Mystic, Conn.

By Geo. E. Tingley, Mystic, Conn.

PROFESSIONAL PORTRAITURE.

BY C. W. HEARN.

(Continued from page 226.)

IX. BALANCE.

Of all the various principles in the composition of pictorial art, even those which receive the most careful consideration of advanced painters, there is none that equals in importance the fundamental one of balance.

To the student in the school of art, as well as to that class of photographers which desires to incorporate artistic principles in its work, balance is a source of ever-present anxiety. We may understand fairly well the principles of "concentration of interest," and possibly be able to employ subordination and the force and power of "contrasts" as effective aids toward the accomplishment of the result. We may have a good general idea of lines, their rhythmic movement, as well as their character, force, and the various uses to which they may be put. We may possess a clear understanding of tone value, atmosphere, and unity of parts, but a thorough knowledge of and ability at all times to apply to our compositions proper balance is a matter that is extremely difficult to accomplish. It is even perplexing for the writer to adequately impart that little information which he has been able to acquire only by much hard study. He sincerely hopes that the editors of Wilson's and other photographic magazines, which are doing so much of late toward the artistic education of photographers, will take steps toward securing more contributions on this subject from recognized teachers of art. These men, writing for the especial benefit of photographers, would give us that information of which we, as a profession, are so much in need. As a first step toward what is to follow on this subject it is advised that the prints from the negatives be made full size of plates, no trimming being done, except to remove the white edges of the paper, caused by the rabbet of the printing frame. Provide yourself with two L-shaped pieces of cardboard about 2 or 3 inches wide, and each several inches longer than the full size of the print to be trimmed. Let these cardboard strips, resembling the carpenter's square (which would serve as an excellent guide in making them), be employed for spacing the print by reversing and covering its margins. By laying them on the picture, and moving them first one way and then another, you may judge how it would look if trimmed. The outside edges of the picture being thus covered you are better enabled, than you would be in any way, to measure the results.

Perhaps a good way to illustrate the importance of balance, as well as to ascertain whether or not it has been obtained, is to take one of your own untrimmed pictures, apply the "shapes" mentioned above, as you may decide, and then tack the whole on a board. With a rule, find the exact centre of each of the four sides of the print, insert a tack, and connect the opposite tack by a coarse black thread. You have now determined the exact centre, vertically and horizontally, and divided the picture into four equal sections by a fine line which is easily seen and does not occupy much space. Set the board against the wall so that the bottom of the picture is perfectly horizontal to the floor. Then you and one or two of your most capable assistants seat yourselves a few feet from the picture, and by critically analyzing it endeavor to find some way by which it may be improved.

When viewing this picture bear in mind that its actual centre at the point where the threads cross at once assumes a pivotal position, guiding you in forming your opinion. If the picture is vertically balanced on two sides the results are very pleasing, but to be perfectly balanced it should be balanced above and below the horizontal line as well. Viewing the picture with proper consideration for certain art principles, it may be found that the right angle pieces of cardboard and threads as arranged are not at all correct and need to be readjusted, and possibly again ad-

justed to show the picture to the best advantage. Therefore, it is of importance to begin operations with an untrimmed print.

We will suppose that some of our readers may adopt the plan suggested, changing the pictures from time to time, or having several similarly arranged, to which reference can be made. Certain points that are mentioned here will be found more applicable to some cases than to others. The writer frequently employs this method, much appreciating the companionship of others, for a general discussion is always helpful, besides creating an interest in his work and at the same time assisting in the education of his employees.

SPACING.

Although the spacing of prints is a great aid toward attaining balance, it may, however, only be likened to the methods of the painter in the placing of his intended composition upon the canvas. Neither in the painter's case, nor in our own, does it tend to produce more than a small proportion of balance. It does not correct or overcome errors in his work, nor will it conceal our own shortcomings, although marginal blunders are often eliminated by trimming the print. The balancing of the composition is supposed to have been done in the arrangement of the design in the first place and carried out through its various stages. The spacing of the print is for the purpose of obtaining the pivotal centre of the picture, which for convenience was made on a larger plate than was desired for the finished proof.

The question now arises, from what standpoint are we to judge whether or not the picture, if made, is properly balanced, or how to bring this about in arranging the design?

REPRODUCTIONS OF GOOD PAINTINGS.

As an assistance in readily explaining some of these points, I would suggest that the reader procure a few good reproductions of pictures that may be recommended to him by an artist capable of discriminating between good and poor reproductions. Space them by the threads as above described, and have them near at hand with your own picture similarly treated. I would suggest that these reproductions be of subjects somewhat low in tone rather than abounding in the strong lights, for no other reason than because such things are likely to be more faithful reproductions of the originals. If the values of the paintings are inaccurately reproduced in the copies the latter are apt to be very misleading to photographers drawing conclusions from their study. If good reproductions of these low-toned or even high-keyed pictures are difficult to obtain do the best you can. But if certain parts of the picture appear in a key of color as bright or brighter than that part which the artist evidently intended to be the central point of interest, the accuracy of the reproduction may be questioned. The correct color values of the original may easily have been lost in reproduction. Don't study bright, sharp pictures in too strong a light.

It is well to mention that many fine carbon reproductions are sold which show only a part of the original pictures, such, for instance, as the head and one-half or three-quarters of a portrait, which in the original was full length. Sometimes the picture contained two or three figures. In such cases many things in the original, which the artist had in mind when he painted it are not shown, and the reproduction is valuable to those artists only who can derive instruction from the fragments seen or who are familiar with the parts omitted. Purchasers of such pictures are entirely dependent upon the artistic knowledge and conscience of the publishers, and must accept their dictum of what could or could not be left out of the reproduction without injury to the picture as a whole.

DEFINITION OF A COMMON ART TERM.

Those who have followed this series of articles will have noted that on many occasions the writer has used the expressions "power of attractiveness," "degree of attraction," "proper measure of attraction," "weight of attraction," etc., etc.

Pictures are judged with a view to properly determine their qualities in balance, values, etc., by the degree or extent to which their component parts, in their relation to each other, *attract* the eye. The

white parts of a picture attract the eye most, unless they are over-balanced by a larger mass of black. The size and intensity of the white, and the size and intensity of the black, with the gradations in tone from one to the other form the gamut over which the eye unconsciously runs in the survey of a picture. Now, although the eye is sensitive to these various degrees of light and dark, it by no means follows that all persons have an equally acute sense of discerning the finer or more subtle shades of difference without previous training or cultivation. When we take our pupil under the skylight to watch the arrangement of screens and curtains he is at first unable to discover much if any difference in the light on the face or figure of the model until his attention is drawn to it by various illustrations. Later he develops this faculty. The experienced and careful operator sees this very quickly, and, because of his training, is very sensitive in noting delicate shades of light and dark in all parts of pictures. Therefore, when we speak to him of the "degree," "power," "measure," or "weight" of attraction he readily understands that we have mentally weighed these things and are able to gauge their proper values. If they are unduly prominent they should be "lower in key," or, if they are possessed of too little attraction, they should be "raised," "keyed up," etc.

POWERS OF ATTRACTION OF TONES AND MASSES BY THEIR LOCATION.

All parts of a picture have certain powers of attraction, even a small mass in a medium low tone, and the proper relation these parts bear to each other in size, location, and attractiveness, has *very much* to do with balance. Such portions, beside attracting attention to themselves, also possess the power of drawing attention from other things. Thus it is that it is necessary when one part of a picture has been made brighter, or more attractive, to devote attention to other parts that may have suffered by the change.

We mentioned above that the location of spots, masses, and even units of varying degree of attractiveness exercised much influence upon the correct balancing of a picture. Mr. Poore in his excellent work on *Pictorial Composition* describes this point very clearly by comparison with the steelyard.

THE STEELYARD.

"On the principle of the steelyard the farther from the centre and more isolated the object is the greater its weight or attraction. Therefore, in the balance of a picture it will be found that a very important object placed but a short distance from the centre may be balanced by a very small object on the other side of the centre, and further removed from it. The weight of the pictorial interest may be on one side of the picture, and the other side be practically useless so far as picturesqueness or story-telling opportunity is concerned, but find its reason for existing in the *balance*, and that alone.

"In the emptiness of the opposing half, such a picture when completely in balance will have some bit of detail or accent which the eye in its circular symetrical inspection will catch unconsciously and weave into its calculation of balance; or, if not an object or accent or line of attraction, then some technical quality, or spiritual quality, such, for example, as a strong feeling of gloom, or depth of penetration, light or dark—a place, in fact, for the eye to dwell upon, as an important part in connection with the subject proper, and recognized as such.

"Let the student when in doubt weigh out his picture in the balances, and then verify it on the steelyard."

Before commenting upon the study of the pictures that have been spaced by the L-shaped cardboards mentioned above, and divided into equal spaces by the threads, we may mention some points that are easy of accomplishment, and after once being brought to the serious consideration of a photographer, should be adopted and put into practice.

VERTICAL AND HORIZONTAL BALANCE.

As an aid in obtaining balance in pictures in these two directions, the photographer would be greatly assisted in the arrangement of one or two persons by

the study of sculpture, in which the centre of gravity plays an important part. Access to art galleries or museums where there are many casts of the world's famous statues is available, to some extent at least, all over the country. We believe that the careful study of sculpture is, in many ways, as important as that of painting. By its study many of the most common errors of vertical and horizontal balance in individual portraiture would be corrected.

Blunders of this kind are too frequent. We all know of the law of gravity, and that a figure, to impress the mind with its stability, should never give rise to a mental inquiry as to whether this law has been observed. Yet we are constantly coming across pictures that are not vertically balanced. They appear about to fall over, one way or another, and simply because the centre of weight of the mass, if carried by a straight line to the floor, would often fall far outside its proper base line. Vertical balance is necessary if the mass is to have the appearance of being properly supported.

In extreme cases, if the vertical balance of a figure is incorrect, it may be due to the camera not being level, or trimming the print badly, or that it slanted, or by cutting off something against which it was leaning, leaving the impression of its not being properly supported. The writer has within a few months served on three juries at exhibitions of pictures. It was painful to note how some pictures, most excellent in other respects, gave him the impression of imperfect balance in these directions. It seemed to him that these defects must be self-evident to all who were capable of producing otherwise good and even meritorious work. It is simply due to a careless observance of a law of physics that must be well understood by even most school boys.

If a figure is thus posed see to it that the support is seen sufficiently to give the eye no sense of deficiency in that respect, which is an essential point in sculpture.

Mr. Leonidas Taft, the noted sculptor, who lectured to us at Celeron in 1899, made special comment on this point in his remarks on the evils of over-retouching, and also that "we should not be afraid to show the formation of the bony structure of the skull," even if it be pleasantly covered with flesh. He mentioned also a point in balance, the substance of which we will here quote, for his exact words have escaped our memory:

There should always be a sufficient part of the body showing to support the head. The vignette is generally condemned. Approval has many times been given to those pictures which, beside showing the figure sufficiently to balance the head, have been so vignetted by long or deep-cut teeth that the body gradually melts away till the bottom of the print is reached. Of course, it may be taken for granted that it is not so necessary for the body to show distinctly and sharply as in the old-time photograph as it is to conform to the view of artists who seem to delight at times in mere indications of the body, but the *suggested* size must be sufficient to give support to the head.

In passing it would be well to state that all artists who have lectured before the Lens and Brush Club of Boston have, at different times, made mention of the same thing.

This, of course, is here mentioned with due regard to the balance of light and dark, etc., which, after some remarks on Horizontal Balance, will be taken up in our next issue.

(To be continued.)

Photographing Bas-reliefs. A writer in one of our English contemporaries calls attention to the facts that a positive and negative if placed in contact with each other, glass sides together and films outward and printed in an ordinary printing frame, will produce a distinct bas-relief effect; while if superimposed with film sides together and the glass sides outward, an opposite effect, or intaglio will result. It seems at first sight remarkable that the positive and negative from the same subject may be made to produce anything but a flat impression without drawing. The experiment is an interesting one and possible of enlargement and application in many ways.

PHOTOGRAPHY AS A MEDIUM OF ARTISTIC EXPRESSION.

THE question of artistic representation and pictorial expression by photography is one that has caused much comment in the past, seems likely to continue a source of discussion for a long future, and may never be satisfactorily settled.

The following contribution to the subject by James E. Masters, in a recent number of *Photography*, is a rational and reasonable presentation of the subject, and one that should induce thought and investigation by all who are interested in photography in its highest sense of usefulness. We consider it a valuable contribution to the subject, and note it to the readers of WILSON'S PHOTOGRAPHIC MAGAZINE as a paper worthy of careful study.—[ED. W. P. M.]

The many and varied printing processes —each with its own peculiar qualities— lend an additional difficulty to the making of any definite statement, a fact which seems to be altogether overlooked by some writers. No capable and reasoning critic would for one moment expect to find in an oil painting the same characteristics he would look for in a water-color picture, yet each (although different in the actual methods of production) is a painting, evolved primarily under the same general principles. In judging the merits of a water-color the critic gives his consideration to the special charm and characteristic essentials of the medium as distinguished and distinct from painting in oils or pastel. Is it, therefore, fair to consider photography in too broad a sense, and apply, for instance, the identical critical exactions to a gum bichromate picture that we would to a glossy P. O. P. print? This is, however, undeniably too often done, more especially by those workers whom we term "purists" and who seemingly ignore the fact that, although both methods are "photography" and produced primarily under the same conditions of working, yet the prints—the results to be judged— are in two entirely different mediums, each with its own distinctive characteristics and limitations.

The power of an exact and critical rendering of minute detail has often been stated as one of the chief characteristics of photographic methods—a statement which, however, requires considerable modifying before it can become acceptable to the logical and thoughtful critic. The rendering of fine detail is undoubtedly a factor to be taken into account, but it cannot reasonably be accepted as an *essential* characteristic of photography. A little careful thought will show us that it is just as much possible to produce an image on the sensitive plate that is soft and diffused as one that is critically sharp in definition. The majority of photographers are apt to think far too highly of the power they have in their hands of faithfully recording detail, and until they get rid of this undue admiration of one of the powers of the modern lens they will be greatly hampered in their endeavors to produce artistic work.

It seems to the writer that the primary and characteristic essential of photography lies undoubtedly in the direction of the correct rendering of "values" and subtle gradations of "tone." These two terms apparently worry many photographers, and though they have each a distinctive signification they sometimes get mixed up in a meaningless and indiscriminate manner. It may, therefore, be well before going further to consider the real import of the two expressions.

"Tone" may be regarded as referring to the hue of a color, or even of a picture or part of a picture. For instance, we say that the tone of burnt sienna is warm reddish-brown, and that of indigo a dull blue. We speak of the golden tones of a Rembrandt or the purple tone of a distance, and also of a "warm" tone and a "cold" tone. "Values" are the relation of light and dark between one color and another. The same term also indicates difference in the intensity or depth of color; for instance, a deep blue is darker in value than a light blue. Values may also be considered with a single color, such as black. Photography being at present practically a method of working in monochrome, we dispense altogether with the study of actual color, and confine our

attention to values, or—to speak more broadly and correctly—"tone values." The accurate and satisfactory rendering of values being such an essential technical consideration, it is absolutely necessary for the photographer who would attain any modicum of artistic success to devote careful and unremitting attention to this aspect of the technical side of his craft. Orthochromatic plates and suitably adjusted light filters will naturally suggest themselves as being a considerable help in this direction. Backed plates may also with advantage be used, as halation is in many cases the little suspected cause of falsification in the rendering of tone values.

When we come to consider what are the limitations of photographic art, if we view the matter in a catholic spirit we experience some little difficulty in arriving at any definite conclusion. What would in the hands of one worker appear to be the utmost capabilities of his craft would probably to another be hardly more than a starting point toward boundless possibilities in the domain of picture making. To the thoughtful student of the subject it would seem that the limitations of photography as a monochrome art rest with the individual worker rather than with the medium. At the present time the rendering of color is practically out of the question, but this is not such a loss as some would have us imagine. The color processes at present on the market leave very, very much to be desired, and, even were they perfected, would appear to tend in in the direction of purely commercial work rather than to present themselves as suitable mediums for personal artistic expression.

In the choice of subjects for pictorial representation the limitations of photography are more clearly obvious. While in portrait and landscape work any limitations may seemingly be ascribable to the craftsman and not to the craft, there appear to the writer to be certain subjects the artistic rendering of which is at present altogether beyond the possibilities of the camera. The artistic representation of the nude, in particular, presents obstacles and difficulties almost, if not altogether, insurmountable by photographic methods. The naked rather than the nude is almost invariably suggested, and perhaps it would be as well if the rendering of the beauty of the human form were left exclusively to the painter, who is fully capable of doing justice to the subject. The few photographic workers whose attention and talent have been turned in this direction deserve every praise for their earnest endeavors, but their task is, I am afraid, a hopeless one, not so much on account of any lack of artistic knowledge or skill, but more particularly owing to the apparent impossibility of securing really suitable models. Other subjects that may safely be regarded as being outside the domain of photography are those of a purely imaginative character and the rendering of mythological and historical incidents.

Photography has also, in common with all other known mediums of pictorial expression, certain definable limitations as regards purity of method, any radical departure from which would at once bring discredit on the medium as being an unsatisfactory art method. I allude to the mimicry of the special and distinctive characteristics of any other medium or mediums. Photographers have, before now, been warned of the dangers of limitation, without, however, the evil having been proved to be existent. It is perfectly possible and legitimate to use almost unlimited control, both in the production of the negative and the resulting print, without in any way encroaching on or imitating the distinctive essentials of any other method of graphic representation. The gum-bichromate process in particular has been made the target of boundless ridicule and abuse by a certain class of photographer, who prides himself on his technical abilities and who is seemingly ignorant of the fact that besides scientific technique there is an artistic technique of which he knows nothing, which is of greater importance to pictorial expression than any scientifically exact methods.

The enemies of gum-bichromate have over and over again attacked the process as being a mere means of imitating, to some extent, the work of the artist, in water-color or chalk, and even of attempting to imitate the characteristics of etching. This standpoint undoubtedly arises from sheer ignorance, not only of the

methods of the "gum" worker, but also of those of the painter.

The claim that a "gum" print in any way closely resembles in appearance or mode of production a water-color picture, or even a charcoal drawing, is ridiculous. He who could possibly mistake any photographic print for a drawing or etching is only to be compared with the man who cannot distinguish between a water-color and an oil painting, and his opinion on artistic matters is certainly not worth a moment's consideration. The methods of production, too, are so entirely opposite. In water-color painting the artist gets his effects, generally speaking, by washing his colors on to his paper; in gum-bichromate working he exercises personal control by *removing* the pigment from his print. Even supposing the possibility of a man being capable of satisfactorily imitating a drawing or painting by any known photographic methods, it may be taken for granted that he would be clever enough to produce his painting or drawing by legitimate and recognized methods, and would not waste his time with any hybrid and tedious process.

The critic who would apparently have us stick to hard-and-fast optical and chemical formulæ and insists—for the supposed sake of the purity of our medium— on direct untouched prints from direct unaltered negatives, is likely to incite us to another imitation, and one, if anything of a worse description—the imitation of nature. Imitation is not art, and this principle is not, as some would have us imagine, a new-fangled notion of the modern artist or critic. It is a fundamental truth which has been recognized by the enlightened of mankind for ages. If we go back even to the fifth century we find that Proclus (A.D. 412-485) says: "He who takes for his model such forms as nature produces, and confines himself to a correct imitation of them, will never attain to what is perfectly beautiful, for the works of nature are full of disproportion, and fall very short of the true standard of beauty."

In conclusion, I think it may safely be said that in the practice of photography as a medium of personal artistic expression, any and every means employed in the production of a desired and satisfactory artistic result (always provided we keep clear of imitating the characteristics of other mediums) is perfectly legitimate. Clumsy "faking" is worse than useless, and has been the means of bringing undeserved scorn and contempt on the methods of personal control in the production of photographic pictures. The careful worker in his manipulation of the varied operations of combination printing, working on the negative, and on the resulting print, will avoid any visible trace in the finished picture of the means employed. Careful and painstaking work is as essential to success in photography as it is in painting. "Faking," when properly and neatly executed, should be practically invisible in the final results, and then the carping critic can detect no possible opening for fault finding, and all his weak arguments and petty restrictions will at once fall to the ground.

NEWS AND NOTES.

To Blacken Brass. The following method is advised for blackening brass by chemical action: Clean the brass (or zinc) thoroughly, and polish with fine emery paper, heat thoroughly, and apply the following mixture:

Platinum Bichloride . . .	24 grains.
Water	1 ounce.

Two or three applications (with heating between) may be necessary.

The following is also said to be efficient, but we have not tried it:

Sulphuric Acid	1 part.
Hydrochloric Acid . . .	2 parts.
Arsenious Acid	1 part.
Water	80 parts.

A Water-tight Cement for Skylights. The following mixture is highly recommended for use in stopping leaks in skylights, and is said to adhere firmly both to glass and metal. It is certainly worth a

trial, and if it will do what is claimed for it it will save many a photographer annoyance, loss of time, and expense.

Many a photographer has been sorely plagued by a leaky skylight, which the builder has vainly attempted to cure. But the use of the following simple mixture will enable him to defy the rain, to dispense with the builder, and yet to have a watertight skylight:

Resin	5 parts.
Soda	1½ parts.
Soluble Glass	½-¾ parts.
Water	5½ parts.

Boil them all together, and of the resultant soapy mass mix fifty parts with eighty parts of plaster. This cement is watertight.

Spots upon negatives come from many causes, and are often due to what may be termed chemical dust. This dust is impalpable and so fine as to be invisible to the eye; but it is there.

The cause is not difficult to find. Packets of chemicals are opened in the dark room, small quantities are spilled and not wiped up or removed, the dust is in suspension, and finally settles upon a negative set up to dry. The consequence is that a spot is found when the negative is dry, and hard words are said about the plate maker.

Dry pyro is a constant source of trouble, hypo, metallic dust, rust, etc.

It has been recommended that the following formula may be used for the removal of chemical spots:

Soda Carbonate	50 grains.
Soda Bicarbonate	4 grains.
Chloride of Lime	10 grains.
Water	1 ounce.

It is exceedingly difficult to remove chemical spots, and the above solution, which is very energetic, should be used with the greatest care. If the negative is badly spotted it is practically impossible to remove the spots; and the moral is to take greater care in handling chemicals in the dark room.

There is really no need—except in most exceptional cases—to make up solutions when negatives are about. Never allow hypo to remain in the fixing dish; the water will soon evaporate, and the hypo will be deposited at the bottom of the dish in fine crystals, which are almost certain to do some damage and to appear again in an unexpected and unpleasant form.

Throw away the contents of all dishes, developing or fixing. Thoroughly wash and set up to dry.—*Hobbies.*

Photographers' Association of Kansas. The Tenth Annual Convention will be held at Topeka, date not yet announced. A list of prizes has been arranged, the most interesting of which, to the craft outside the State, is the diamond medal or grand prize for the two best pictures, 13 inches or larger, on any subject, by out-of-State photographers, the picture to become the property of the Association for hanging.

Toning of Bromide Prints. An interesting paper was read before the Hull Photographic Society by Major R. E. Johnson, in which he treated on a method of toning bromide prints to a rich Bartolozzi red. The following method was suggested for the toning. Major Johnson recommended that the prints be first bleached in potassium bichromate, 20 grains; hydrochloric acid, 2 drachms; water, 10 ounces; and washed until free from all yellow stains, then placed in a bath made up of Schlippe's salts, 15 grains to the ounce of water. This being an intensifying process, the prints to be toned must be fairly light. It is also absolutely essential in this process that all the hypo be eliminated from the print before toning. The lecturer recommended the following process for permanent blue tones: To a 10 per cent. solution of ferric chloride add a 10 per cent. solution of potassium ferricyanide until no more precipitate is formed; then dissolve this precipitate by adding potassium oxalate in a 10 per cent. solution. When clear, a deep-green solution is obtained. Then wash well, and clear the high lights by immersing in a 2 per cent hydrochloric acid solution.

A violet tinge can be imparted by immersing in a 1 per cent. solution of ammonia after clearing.

THE BRITISH PAVILION AT ST. LOUIS.

PHOTOGRAPHERS who are interested in reproductions of old English architecture, furniture, decorations, etc., should not fail to see the building erected by the British Government at the St. Louis Fair, in which the Royal Commission of Great Britain will be housed. It is described by a writer in the *London Times* as follows:

"Colonel C. M. Watson, Secretary of the Royal Commission on the St. Louis Exhibition, and Commissioner-General, has just taken possession of his offices in the pavilion erected on the World's Fair grounds by the British Government. This is a reproduction and adaptation of Wren's Orangery at Kensington Palace. It has been erected from designs made by a British architect, and the work of erection has been carried through by the well-known London contractors, Messrs. George Trollope & Sons. It is understood that the cost has been something over £20,000. As usual in all exhibitions, the British Commissioners have not been content to put up a temporary building in plaster or, as it is known technically, staff, but have made it as solid as if were to stand the test of time.

"The finishings and furnishings of the interior of the building are in keeping with the character of the apartments represented. The banqueting hall, with fine panelling, is a reproduction of the Orangery at Kensington Palace. The plaster ceiling is enriched with the royal arms and festooned mouldings of fruit and flowers, the work of the contractors. The furniture of this room, by the same firm, comprises fine reproductions of historical examples of the Queen Anne period. The old console tables formed part of the collection at Merstham House (Lord Hylton). The chairs are reproduced from the originals in the possession of the Earl of Westmoreland and others. The brass chandeliers are patterned upon fine old examples. Next to the banqueting hall is a fine suite of rooms designed in old English styles.

"The Elizabethan room has an ornamental ceiling copied from the breakfast room of Holland House, to the designing and production of which some of the best artists contributed. The chimney-piece, panelling, and plaster frieze are taken from well-known examples, such as Bromley Palace, Knole Park, Crewe Hall, and others. The furniture belongs to the same period, the small cabinet being a copy of one dated 1621, formerly belonging to Archbishop Sharp. The two large cabinets are also examples of the period. In the centre is a copy of a fine old Elizabethan table, formerly in the exhibitor's possession. The arm-chair and settee are adapted from models in the famous collection of Elizabethan furniture of Knole Park, Kent, the seat of Lord Sackville, while the high-backed arm-chair and stool are exact reproductions from the same collection, from which are also drawn the designs for the chandeliers. The armor was formerly in the collection of the late Earl of Egmont at Cowdray, who also possessed the originals of the four chairs covered in old embroidery.

"The Georgian Room, with white carved panelling and mahogany doors, is a fine specimen of English work of the period, reproduced from an old house at Epsom. The furniture consists of beautiful examples of the period, with a few reproductions of old pieces formerly in the exhibitor's possession. The wall lights are copies of old ones. The Adams Room, with its enriched plaster ceiling, frieze, and doorways, is taken from examples designed by Robert and James Adams in the latter part of the eighteenth century. The furniture in this room is in the manner of Sheraton, and comprises many actual examples of the period. The Large Room (Queen Anne) is designed in the style of Sir Christopher Wren, the details being taken from Hampton Court Palace and Belton House, where Grinling Gibbons executed some of his best wood-carving under Sir Christopher's direction. Its furniture is from old examples, some of which were in the possession of Mrs. Trollope. The original chair came from the collection of Lord Hylton at Merstham House, the settee was prepared for Queen Anne's reception at Forde Abbey, while the cabinet is an old one, procured from a family in which it has been for generations."

MATT-SURFACE PRINTING-OUT PAPERS WITH PHOSPHATE AND OTHER SALTS OF SILVER.

BY A. J. JARMAN.

MATT surface printing-out papers are not at all difficult to prepare. Any one desirous of making up this class of paper for his own use can do so. The cost is trifling compared with some of the matt-surface papers upon the market. Sensitive paper prepared with phosphate of silver was invented by Dr. Fyfe in 1839. The results obtained appear to have been of a varying character, while that brought out by Dr. Main a few years since appears to be a compound of phosphate of silver and tartaric acid. The exact process of preparation has been kept secret. Printing-out papers containing phosphate of silver can be made; but to obtain good results this salt must be in combination with others, such as the chlorides and tartrates. In preparing matt-surface paper it does not appear to be generally known that there are several commercial varieties, notably those manufactured by the Whiting Company of New York, that answer the purpose, being very free from metal spots and producing prints of excellent quality. The paper possesses good keeping qualities and tones easily. The Angora white, in sheets 21 x 33, is a very fine paper for photographic work, in two different weights. The writer having used this paper is enabled to speak of it with confidence. Whatman's or other *plain* papers sold at the photographic stock dealers can also be depended upon. There is no need to size any of these papers, as the formulæ given here will contain sufficient sizing in the salting solution to dispense with that operation. A small quantity of sizing in the solution used for the salting of the paper is decidedly advantageous, as it aids in the formation of an organate of silver and produces prints that are well upon the surface, thus preventing a sunken-in appearance. There will be no need to employ a large tray for the salting operation. Pieces of paper 10 x 12 or 11 x 14 will be a very convenient size to prepare, and enable those who have never performed the operation of preparing their own paper before to get the practical knack of floating the sheets upon the surface of the liquid without allowing any superfluous liquid to flow over the back of the paper.

Either of the following formulæ will give good results:

No. 1.

Phosphate of Soda	50 grains.
Chloride of Ammonium	110 grains.
Chloride of Sodium	110 grains.
Distilled Water	20 ounces.
Gelatine	120 grains.

No. 2.

Chloride of Ammonium (c. p.)	120 grains.
Citrate of Sodium	280 grains.
Gelatine	120 grains.
Distilled Water	20 ounces.

No. 3.

Chloride of Sodium	130 grains.
Chloride of Ammonium	130 grains.
Distilled Water	20 ounces.
Gelatine	120 grains.

In every case allow the gelatine to soak in the water after the salts have been dissolved. Raise the temperature to about 140° Fah., and filter through absorbent cotton in a clean glass funnel.

The above are three distinct formulæ. The one containing sodium phosphate produces a paper that, when sensitized, will give very soft prints. No. 2 is capable of giving prints with very rich shadows, and when toned with a special platinum toning bath will give very rich blacks. No. 3 will produce a paper that can be toned in any gold toning bath, giving beautiful prints of sepia tint to a rich purple-brown. Paper prepared with No. 1 can also be toned in any gold toning bath, two of which will be given herewith that will work very satisfactorily with the matt papers described. Although arrow-root can be used as a sizing agent, gelatine is to be preferred, owing to the tendency of arrow-root to subside during the process of coating the paper. Then again, gelatine, like albumen, forms a definite compound with silver nitrate, which aids in giving a more brilliant image. As soon as the salting solution is ready and filtered it must

be poured into a clean porcelain tray, which has been previously warmed by filling it with hot water. The temperature should be not lower than 60° or 70° Fah.

Take a sheet of paper, say 11 x 14, hold it by the extreme corners, then lower it down upon the surface of the solution slowly. In a few seconds the edges will curl up. This may be prevented by breathing the damp breath upon the back of the paper, or by laying a clean wooden clip upon the back of the paper upon that part where there is the greatest tendency to curl. It will soon lie flat. It must then be examined for air-bubbles. If they have formed upon the surface they must be dispersed by brushing the spot over with a small camel-hair quill brush previously dipped in the salting solution. The time required for the paper to remain upon the solution may not exceed two minutes, long enough to get the surface well and evenly coated. It may then be lifted, and drained at one corner, then clipped by two clean wooden clips to dry, away from all dust. When quite dry the sheets should be packed away under pressure in a printing frame, with a small pencil mark to indicate the back of the paper, so that the sheets will become very flat and even when required to be made sensitive to light.

It may be mentioned here that some of the Japanese papers can be used for this work, excellent results being obtained upon some qualities of this paper. The Japanese vellum and the stout varieties are troublesome to handle; the thin and softer varieties are best suited.

Having the paper salted and dried it must be sensitized upon a solution of nitrate of silver made up as follows:

SENSITIZING SOLUTION.

Citric Acid (crystals) . .	¾ ounce.
Silver Nitrate	3 ounces.
Distilled Water . . .	22 ounces.

Dissolve the nitrate of silver in 18 ounces of distilled water and the citric acid in 4 ounces. Add the citric acid to the nitrate of silver, filter the mixture through absorbent cotton. It is now ready for use. Provide a clean porcelain or glass tray to hold the solution. Take the sheet of paper to be sensitized and lay it down upon the solution just the same as in the case of salting the surface. The paper may now curl up as it did in the previous operation. If it does, the same means used then will prevent the curling in this instance. The thicker the paper the more likely it is to curl. This is due to surface expansion of the paper when it first becomes wetted. The thinner the paper the less trouble will arise from this cause, because the liquid penetrates it more rapidly.

Allow thick paper to remain upon this solution for five minutes. Four minutes will be sufficient for thin. It may then be lifted from the bath, drained well, and hung away from actinic light to dry in a warm place. Paper prepared in this way will keep well for several weeks, with no special precaution, by rolling it face to face upon itself or by keeping it under pressure in a printing frame.

Such paper will be very sensitive, and the prints made upon it may be kept for weeks before toning, if desired.

The next operation will be the toning of the finished prints. These should be printed to a depth two or three shades deeper than required for the finished picture. The necessary number of prints having been made, proceed to wash them in clean water, allowing them to soak for a few minutes after each change. Five or six washings will be required. In the third washing add about one ounce of a saturated solution of bicarbonate of soda to the wash water. This will aid in neutralizing the free acid that may remain in the paper, which will facilitate the toning considerably. After the washing is complete toning may be carried on in either of the following toning baths. No. 1 may be used again and again by adding gold chloride solution and borax until the bath becomes purple in color from use, when it should be discarded or thrown into the crock for waste gold solutions. No. 2 will give very fine purple tones. It must be mixed fresh for each day's use. The combined toning and fixing solution should not be used, because the resultant picture is very unstable, the toning action being brought about by sulphurization.

No. 1.

Saturated Solution of Borax	3 ounces.
Solution of Chloride of Gold (1 gram to oz.)	2 ounces.
Water	25 ounces.

No. 2.

Phosphate of Soda	24 grains.
Chloride of Gold	2 grains.
Water	25 ounces.

The prints having been washed, place a few of them into either of the above baths, and keep the prints on the move. For rich brown tones use the borax bath. In a short time it will be seen that the prints begin to change color. Do not carry the toning too far, because they dry down much darker when finished. When toned to the required color place them in clean water, wash them twice, then fix them in a solution of hyposulphite of soda, 2 ounces to 20 of water, to which a couple of drops of water ammonia has been added (not more). Fixing will require ten minutes for thin paper and twenty minutes for thick or heavy paper. The prints must now be well washed for half an hour in a stream of running water, when they may be blotted off and suspended by clean wooden clips to dry. After this they may be trimmed and mounted.

To obtain beautiful brown-black prints the salting of the paper should be made with No. 2 formula, and the printing carried a little deeper than for sepia or brown tones, the toning being carried out with a solution of chloroplatinite of potassium prepared as follows, and carried out as directed.

Toning for rich black tones: Make up the following and keep at hand, ready for use, as a stock solution:

A.

Chloroplatinite of Potassium	120 grains.
Distilled Water	4 ounces.

B.

Citric Acid	1 ounce.
Distilled Water	4 ounces.

A small bottle of pure nitric acid may be kept ready for use. When the prints have been well washed they may be toned in the gold bath as usual. Now wash them in several changes of clean water, and tone again in the following platinum solution. Take of the stock solutions A and B the following quantities:

A	2 drams.
Water	10 ounces.
B	6 drams.

Take the prints, about two at a time, immerse them in this bath; keep them moving about. In a very short time the color will be a rich black. The prints must be removed and washed, then fixed in a solution of hyposulphite of soda, the same as used for gold toning, and washed afterward in precisely the same manner.

If a rich brown-black is desired the gold toning may be omitted and the print toned in the platinum solution from which the citric acid has been omitted and the 3 or 4 drops of nitric acid used instead. The print must be washed, fixed and washed again, as previously described. A trial or two with some suitable small prints might be made in the first place. This will enable the operator to determine the exact points of manipulation, color, etc. There are many instances where this class of print could be brought into use by the professional photographer in his everyday business, as well as affording considerable pleasure to the amateur in being able to prepare his own paper and procure results that are obtainable by no other means, thus becoming acquainted with a practical method of making a printing-out matt paper which will produce the various shades of color from sepia to a jet black.

Silver Stains on Negatives. It is said by one who has tried the process successfully, that brown stains on the film side of glass negatives may be removed by immersion in a bath of

Iodide of Potassium	30 grains.
Iodine	30 grains.
Water	1 ounce.

The stains after immersion in this bath become yellow, and the negatives should be removed to a freshly made fixing bath of hyposulphite of soda as soon as this color has been reached. One immersion will usually remove stains in ordinary density, but a second or third may in some cases be necessary.

PREPARING, SENSITIZING, KEEPING, AND USING SALTED PAPER.

BY PROF. RODOLFO NAMIAS.

THE term salted paper I apply to a good quality of paper which has received a coating of gelatine or arrow-root containing a soluble chloride, such as that of sodium or ammonium. This paper when required for use is sensitized with a 10 per cent. solution of silver nitrate and then treated in the same way as sensitive albumenized paper.

I have made a good many experiments with a view to determine which of the salted papers now on the market is the best, what is the best way of enhancing the keeping properties of the sensitized paper, and at the same time of increasing the vigor of the image obtained, and which are the most suitable toning baths to employ to get the best colors. I may say at once that the best of the commercial papers which I have tried is the Crossed Swords brand manufactured at Dresden.

I myself made a number of experiments in salting papers, and have established the fact that the nature of the soluble chloride has a very trifling influence upon the results, while the addition of alkaline salts of the organic acids, and especially of citrates and tartrates, which allow the most vigorous images to be obtained, has a very marked effect. In order to facilitate platinum toning, the employment of arrow-root as the vehicle is preferable to that of gelatine. There is no real advantage in preparing one's paper one's self. The economy is very slight, for Rives paper ought to be used, and that, even uncoated, is costly. The influence of the paper support itself is, if anything, greater in the case of salted papers than it is with others, because the sensitive compound is in intimate contact with it and not in a separate film or layer of gelatine, collodion, or albumen. This is the reason that it is not easy to get good salted paper or a paper of inferior quality to the Rives. Besides the purity of the fibre, the quality of the sizing material used has a great influence on the result. The same sizing formula employed with two different papers, one a Rives and the other a different make, gave me results so diverse that I could hardly believe that they had received the same preparation.

Salted paper should be sensitized on a neutral solution of silver nitrate containing not less than 10 per cent. of nitrate. To sensitize it, the paper should be floated face downward in the usual manner for from two to three minutes. The paper is hung up to dry, and when quite dry should be used the same day or the next, for this kind of paper rapidly alters. This change is due to the excess of silver nitrate, which in close contact with the fibre of the paper is partially reduced, giving rise very rapidly to a yellowish coloration. Besides its poor keeping qualities, salted paper prepared in the usual way has another inconvenience, giving with negatives of average density extremely flat and weak results. I have convinced myself that both these defects can be got over by the use of a bath of a 4 or 5 per cent. solution of oxalic acid. The acid changes all the silver nitrate present to silver oxalate, and this is a body which acts as a chemical sensitizer. I have already pointed out that oxalic acid, and silver oxalate more especially, act as energetic sensitizers upon silver chloride.* Silver chloride alone does not give vigorous images, but it quickly changes under the action of the light. Silver oxalate alone is not very sensitive, although with sufficiently prolonged exposure it will give vigorous images. The mixture of silver chloride and oxalate is not quite so sensitive as the mixture of silver chloride and nitrate, but with a reasonable exposure it gives prints of great strength, and has this advantage, that it does not lower the contrasts of the negative, nor do prints with it lose so much in the toning operation.

Plain salted paper accordingly, if treated with a plain final bath of oxalic acid, possesses the following qualities; the speed of printing is slightly lessened, but the prints are more brilliant and keep their strength better with the various toning

* 1899. II. Congrés Photographique Italien, etc.

baths that may be used, even in the case of platinum, which, as is well known, attacks the image much more than the other baths do.

The stability of silver oxalate and its complete insolubility have the good feature also of making the paper keep much better; the excess of oxalic acid in the paper is an important factor in this connection. Nevertheless, it may be noted that the paper gives still better results if citric acid is used as the preservative and the action of the oxalic acid is limited to the conversion of the nitrate into oxalate.

To effect this, all that has to be done is to employ as the bath a solution containing 2 per cent. of oxalic acid and 4 per cent. of citric acid. Then in the final stage there will remain only a very little oxalic acid, while there will be a considerable excess of citric acid. No organic acid lends itself to our present purpose like oxalic. Citric acid, for example, cannot by itself be used to transform the silver nitrate into citrate because of the solubility of silver citrate in the nitric acid which is liberated. The effect of a plain bath of citric acid is to remove a good deal of the free silver that was in the paper, and so to weaken the image which will be made thereon. Tartaric acid is more convenient in this respect than citric, because it can, at least partially, decompose the silver nitrate, although the reaction is not complete. The silver tartrate is, however, much less stable than the oxalate, and it has less effect in increasing the contrast of the resultant prints.

The usefulness of a final oxalic acid bath having thus been shown, let us see how it can best be applied in actual practice. The paper, after sensitizing and drying, is immersed entirely in a dish containing one ounce of oxalic acid and two of citric acid in fifty ounces of distilled water. After a few moments it is taken out and hung up to dry, or the drying may be helped by pressing it between filter paper. The keeping properties of paper so prepared are very high. I have kept it for a year or more without noticing more than a very slight alteration. It is, all the same, better not to keep it for more than three or four months, if for no other reason than that the paper loses in strength.

In the following directions the best method of treating such paper to secure good prints of an agreeable color is laid down. The prints should be deeply printed, as with emulsion papers.

I. COMBINED BATH FOR BROWN TONES.

After well rinsing to get rid of the acid, the prints are placed in the following toning bath:

Water.	20 ozs
Hypo.	3 ozs.
Alum	190 grs.
Ammonium sulphocyanide . .	95 grs.
Sodium chloride	95 grs.
One per cent. gold chloride solution	1 oz.

In this solution the prints assume a reddish-brown color, which, for some subjects, is very suitable. If preferred, the ordinary combined bath containing a salt of lead, recommended for P.O.P., can be used.

2. PLAIN GOLD TONING.

In order to tone these salted papers with gold and keep the whites pure, a preliminary bath of a 5 per cent. solution of common salt should be used. We can thus transform all the silver oxalate into silver chloride, and avoid the powerful reducing action which oxalic acid and the oxalates exercise on gold chloride, which otherwise would have the effect of precipitating gold upon the whole surface of the print. This ought to be borne in mind whenever papers containing silver oxalate are dealt with. After this salt bath the print is washed and placed in one of the gold toning baths. A plain solution of gold chloride (one part in a thousand) containing ten parts of sodium bicarbonate and five parts of common salt will be found very good. The tones which are thus obtained are violet-black. A good color is made more certain if the print is placed for fixing in one of the combined baths containing lead referred to in the preceding paragraph.

3. PLATINUM TONING BATHS.

A platinum bath is very suitable for salted paper of this description. This follows, doubtless, from the fact that the silver oxalate to start with, under the action of light, gives rise to black reduction products. The bath I recommend is as follows:

Potassium chloroplatinite	1 grain.
Oxalic acid	100 grains.
Pure hydrochloric acid	1 dram.
Distilled water	20 ounces.

Baths containing phosphoric acid are not to be recommended; they give yellow stains and a yellowish tinge generally. Deeply printed pictures from vigorous negatives (thin negatives do not give good results) are rinsed and then immersed in the platinum toning bath, which in winter time should have the chill taken off. When the desired change of tint has taken place, the prints may be taken out, quickly rinsed for a few moments, and fixed. Fixation is preferably carried out in the combined toning and fixing bath already mentioned.

4. COMBINED GOLD AND PLATINUM TONING.

With double toning the best colors are to be got. The prints are partially toned with gold in the bath given under heading No. 2 (p. 278), and are then transferred to the platinum toning solution already described, where they may be left if desired for a considerable time, as any very great weakening of the image is not to be feared in this case. They are finally fixed in a plain hypo solution, or, if preferred, in the combined bath.

5. COLORED IMAGES WITH POTASSIUM FERROCYANIDE.

Salted paper as described above can be used for direct ferrocyanide toning. It has been said that this can be done with matt gelatine or collodion P. O. P., but I have never been able to get a good result with it.

On the other hand, this salted paper, if it does not tone as well as gelatino-bromide, nevertheless gives satisfactory results, especially with uranium. The following is the formula I prefer:

Uranium acetate	48 grains.
Water	20 ounces.
Glacial acetic acid	100 minims.
Potassium ferricyanide	20 grains.

Instead of the uranium acetate, uranium nitrate can be used if preferred, adding to the formula ninety-six grains of crystallized sodium acetate. The print should be very deeply printed under a strong negative, washed, fixed in hypo, and then well washed. It is then placed in the above bath until the red color desired is obtained. The blue color, with iron, is not got so successfully if the blue toning is direct; it is better to tone with uranium and then to modify the color. To do this the red-toned print is placed in a one-tenth per cent. solution of ferric chloride, acidified with nitric acid. However, it is not easy even with this method to obtain a completely satisfactory result. Toning with copper ferrocyanide does not give practical results with salted paper.—*Photography.*

SOME ADVANTAGES OF RAPID EXPOSURES.

THERE has been much argument and discussion as to the comparative merits of slow or rapid exposures in cases where it is equally feasible to adopt either. For a long time the pictorial photographer at least was wont to pin his faith to a generous exposure and a rather dilute developer, claiming that they afforded negatives of greater softness and delicacy. Of late, however, there has been evident a decided tendency to recede from this position and a growing fondness for rapid exposures. The fact is that the photographer is becoming more and more aware of the admirable qualities of modern fast plates and films and of certain advantages accruing from their use with large diaphragms and quick-acting shutters. The old question of hand versus stand camera does not come in here. The question under review is the advantage or disadvantage of a short exposure, without any reference to the kind of apparatus employed. What is often felt to be a strong argument in favor of rapid exposure may be stated as follows: A finished photograph conveys a fixed and definite impression which does not alter as we look at it. Unlike poetry or music, which possess the power of calling variety and change to their aid, a picture or photograph has to make its appeal, once and for all, at the first moment the eye gazes

on it. Our after-sensations are purely mental processes, following slowly but surely after that first rapid glance. Now, it may certainly be argued, with considerable reason, that an impression which is to be instantaneously received will be best if portrayed with equal quickness. To explain our meaning: When we gaze admiringly at a landscape we do not see it in perfect rest; however still the air or constant the light, there is bound to be a swift succession of hardly perceptible changes which prevent our eyes from tiring of the scene. We cannot show this in the photograph, nor can the artist in a painting. We can only watch carefully for one suitable instant when everything satisfies our eyes, and try as best we can to preserve this happy moment on our sensitive film, so that the beholder who sees our picture may enjoy a portion at least of our pleasure in the original. It follows, logically enough, that as we can only portray the landscape as it appears for a fraction of time, and as also the photograph so produced must make its destined effect on the mind of the beholder in much the same brief interval, that the long exposure is, in theory at least, undesirable, because instead of giving the simple impression that is wanted, it attempts to show the eye in one short instant more than it would naturally see in that period of time.

Among the indirect advantages of the quick exposure must be cited the fact that it generally involves the use of a large aperture and a rapid plate. These are both highly desirable from an artistic point of view, owing to the greater softness and better rendering of tone values thereby ensured. The old-style photographer who stopped everything down to *f*/64 and preferred a slow emulsion is now seldom met with. It may be stated, with a fair amount of justice, that much of the delicacy and charm of modern photographic work is due to the great advance in the manufacture of plates and films of high rapidity. It goes without saying that while in the majority of cases the photographer can exercise his choice between a rapid or slow exposure, there are many instances where the former is imperative. In such a class must be placed the portraiture of children, rapidly-moving objects, animals, etc. Now, how often is it demonstrated that the operator who habitually gives rather slow exposures will secure his best and most telling pictures from just these very subjects, where his usual plan cannot be followed. He is compelled to do for once what he would be wise to do always, and his work is instantaneously better. It is not difficult to call to mind many examples of second- and third-rate photographers whose ordinary productions are, although technically passable, distinctly stiff, but whose portraits of children, for instance, leave little to be desired. They would tell you the latter were prettier and more effective subjects, less difficult to pose, and so on. Of course, this would be true to some extent, but still, behind everything else, the thoughtful examiner into the reason of things would be able to see, unmistakably, that the enforced rapid exposure had really the most to do with the result. Not that quickness of exposure cannot be overdone; it may become a curse instead of a blessing. This latter effect is most likely to happen in the case of quickly-moving objects, and seems more or less unavoidable. It is surprising what a clumsy and unattractive picture may be obtained photographically from such a subject as a galloping or a jumping horse, which no doubt will appear to the eye the ideal of grace and flexibility. In the instantaneous photograph, however, the rounded curves become straight and angular, the flowing muscles appear taut and strained; even the very effect of motion seems either lost or caricatured. It is easy enough to understand how this happens. The camera presentment is truthful and exact, but it is not what the eye sees. Owing to the phenomenon of persistence of vision, for which humanity ought certainly to feel grateful, we are unable to distinguish closely between a series of rapidly-succeeding movements, but perceive them blended together and softened to a great extent. In consequence, that crudeness and stiffness which are rendered in the camera's version of rapid motion are rarely present to our actual sight. From this it may be deduced, as a general rule, that in the case of moving objects it is always advisable to give the longest expo-

sure possible without showing movement. A reasonably good light is imperative if a quick exposure is to be given. This opens out another direction in which the rapid exposure seems to score. It is obvious that wherever the light is capable of modification by the operator he will naturally try to obtain as effective an illumination of the subject as possible. This leads to more consideration being given to securing a suitable even, soft, and diffused light, and, in consequence, to better pictures. The man who habitually uses slow plates and gives a longer exposure can afford to be less particular. It is not suggested that he necessarily will be, but the balance of probability points that way. Then again, wherever there is the opportunity of choosing time and place, the photographer who pins his faith to the rapid exposure will most likely determine on that period of the day and that situation which he knows will afford him the most satisfactory lighting; whereas one who adopts the contrary system of exposure is under no such obligation, and will take things more easily—a practice which does not tend to the finest results. It would certainly seem that the adoption of a rapid exposure as the standard for ordinary work tends to the development of many photographic virtues. There is yet another. It can hardly be denied that, whatever additional effect it may have on the average worker, it will certainly promote the exercise of a faculty for instant decision. Few qualities could be of greater value in the pursuit of the camera craft. The man who fumbles and hesitates is immensely handicapped. It will take him, perhaps, half a day and many failures to secure the same result as his quicker and more decisive colleague will obtain in a few minutes. This has been strikingly exemplified of late years in high-class portraiture. The methods of working of most of our best operators, as compared with the slow, experimental dwaddle of the past, afford a striking and instructive contrast.

An old dictum, and one not even yet quite dead, is that by prolonged exposure in portraiture a better and more characteristic effect is produced through the imperceptible blending of different expressions. This is hardly a theory which finds much favor among the modern school of operators. It is perfectly true that, in the old days, the practice often had the useful effect of banishing from the sitter's face that unhappy fixity of feature produced by the use of the head-rest and treatment which tended to promote self-consciousness. In that respect the long exposure did undeniably tend toward greater naturalness. Nowadays, however, the sitter is handled in such a different and more sympathetic manner that it becomes simply a question of catching the rapidly fleeting smile or the glance of interested intelligence before they have had time to evaporate. And here, again, the rapid exposure scores. Another direction in which the rapid exposure has beneficial consequences is to be found in those subjects where a danger of halation is present. This defect is, in all cases, less likely to occur, and very often is greatly minimized, by giving a short exposure in preference to a slow one. A quick exposure does not necessarily mean underexposure. The latter should be avoided at all hazards. It is the one great bane and curse of the photographer's existence. It ought, in the majority of cases, to be quite possible by wise choice of time or place, adaptation of lighting, and employment of rapid plates and lenses of large aperture, to give a minimum exposure. It need not be an instantaneous one; it is only attempted to suggest that it should be the shortest possible under the circumstances. But no matter what these may be, it must be a full and sufficient exposure, calculated to give a negative of satisfactory and truthful gradation.—*British Journal of Photography.*

Some Early Photographs. An extremely interesting collection of photographic prints made by Mr. Fox Talbot in 1840–1843 were recently shown in a lecture by Mr. J. Backhouse before the Ulster Photographic Society of London. This collection of prints is unmistakably authentic and represents some of the earliest experimental work of Mr. Talbot. The collection is of great value as illustrating the early history of photography, and it is to be hoped that some means will be found for preserving it for future generations.

THE PHOSPHORESCENCE OF PHOTOGRAPHIC PLATES.

A VERY interesting series of experiments has lately been carried on by Mr. T. A. Vaughton, of England, with a view to determining and tabulating the phosphorescent qualities of the ordinary dry plate. Mr. Vaughton's researches into this interesting field seem to have demonstrated that the sensitive silver salts, such as the bromide, iodide, and chloride, if precipitated and kept in the dark, have the property, under certain conditions, of emitting light in degrees proportionate to their sensitiveness. A convenient way of observing the phenomenon is to take a bromide photographic plate and place it at once (*without* having exposed it) in ordinary pyro-soda developing solutions, and allow it to remain for ten minutes. Take out of the solution, wash, extinguish the "red lamp," and in total darkness plunge it suddenly into a dish containing a saturated solution of aluminium sulphate. The plate immediately becomes phosphorescent, and the solution also is luminous, but not so bright as the plate is at first. The light gradually weakens, and in a minute or two dies away. On pouring the solution off the plate into a bottle, the whole body of the liquid becomes luminous, and has the appearance of "bottled moonlight." It remains so several minutes, and the light is increased by shaking the liquid. If half the plate be exposed to the action of white light for a second before treating with the pyro-soda solution, that half remains dark and emits no light when the plate is put into the aluminium sulphate. If the plate is given a short exposure in the camera, and developed and put into the aluminium sulphate solution, the image will appear dark on a phosphorescent background. On placing some precipitated bromide of silver (which had been kept a few days in a corked test-tube in the dark) in a porcelain dish and exposing it to a bright-red light while adding the pyro-soda solution, it appears black, but on pouring off the solution the precipitate gradually assumes a bright green appearance under the red light, while in white light it appears dark-gray or black. The remarkable part of these experiments is the fact that the exposing of the silver salts to the action of light destroys their power of emitting it under the treatment described.

This remarkable luminosity, first correlated to known conditions of working by Mr. Vaughton, appears to possess quite remarkable properties, and for the present all Mr. Vaughton says is: He has "not yet thoroughly examined the light or radiation emitted by these experiments, but its actinic power is low, and it appears to render the brush discharge from an induction coil more numerous." It may be remembered that nearly twenty years ago the late W. K. Burton noticed some completely paradoxical phenomena in connection with the phosphorescence of an emulsion, so much so that he said he would not have ventured to put on record what he believed he saw unless another person had been present, as he felt like one who had seen a ghost, and could not reasonably expect others to believe him. All the old observations on the phosphorescence of emulsions and plates will now possess a new interest, and Mr. Vaughton has no small task before him in reducing the older observations to a complete whole, and in continuing his own researches.

The result of Mr. Vaughton's experiments appear to have been corroborated and the subject carried still further by a series of supplementary experiments carried on by Mr. H. Edwards, who says that not only the plate itself, but also the used developer, will give phosphorescence with alum solution. Further, he says that dilute sulphuric acid is to be used instead of the alum. Quinine sulphate or hydrochloride does not light up when the used developer is added, but will do so if a few drops of sulphuric acid are subsequently introduced. The experiment may be still more easily made by mixing potassium bromide and silver nitrate solutions in dim gaslight, decanting, and shaking up the resulting silver bromide with pyro-soda. A red liquid results which gives the lighting-up effect when poured into alum solution or dilute sulphuric acid.

BLACK PAPER BACKING.

A GOOD deal of discussion has lately taken place with reference to the advantages claimed by many for the ordinary plates backed by the user with black paper.

The following article from the pen of Mr. W. J. Napier, in a recent number of *Photographic News*, offers a very clear and logical contribution to the literature of the subject, based upon careful experiments. It is well worth the careful consideration of all who are obliged to photograph interiors or out-of-door views possessing extreme contrasts of light and shadow.—[ED. W. P. M.]

"Two years ago Mr. Ewing strongly recommended black paper backing to the notice of photographers as a preventive of halation. Since then several photographers have published the results of their trials in the photographic press, but these have been so conflicting that I carried out a series of experiments lately with the object of ascertaining for myself its value in the direction indicated.

"Experiments when conducted in a certain way can be made, like figures, to prove almost anything; and in order that the conclusions drawn from them may possess due weight, it is absolutely necessary to conduct them with due circumspection so as to eliminate every possible source of error. I did not, for example, follow Mr. Ewing's method of applying the paper. I procured some 'thin black duplicating paper.' Glycerine was thoroughly rubbed into this, and a piece was squeegeed on to a sheet of glass to see if it would adhere perfectly. Having satisfied myself on that score, I rubbed on more glycerine and applied it to the back of a dry plate, rubbing it down as I should a piece of wet gelatine P. O. P. that I was going to gloss. This perfect contact of the backing and the glass I take to be absolutely necessary. A piece of black paper having the words *Photographic News* cut out was pasted on a sheet of glass, and the latter placed close to the glass of a window, the light to which was not obstructed from the blue sky by houses, trees, etc. A rapid dry plate, one-half covered with the black paper backing, was now exposed in the camera, so that the words ran right across the plate and developed. There was no halation visible behind the backed part, but it was strongly marked opposite the unbacked portion, and where the backing ended was clearly and sharply defined. Nevertheless, the result was not considered decisive, as a certain error was possible.

"In the second experiment the flame of a lamp was photographed on three plates, one of which was backed by its maker, another with the black paper, and the third unbacked. There was no halation on the first two, but some on the third. Even this was considered unconvincing, and a third experiment, more stringent and searching, was carried out. A piece of black paper, 4¼ x 3¼ inches, having pieces ⅛ in. wide cut out of it lengthwise, was placed in a printing-frame in front of a dry plate, and the latter exposed ⅙ second to such daylight as came in through a large window. Another was at once exposed for five seconds. These two plates, which had been backed by the maker, had the backing rubbed off two-thirds, on one-third of which black paper was applied, the remaining third being left unbacked. Thus one-third was backed by manufacturer, one-third was black paper, and the remainder unbacked. The first plate showed halation strongly at the unbacked part, but none elsewhere. The other, which received five seconds, showed the true value of the paper backing. There was no halation on the part that the manufacturer had backed, some opposite where the black paper had been, and a fearful lot on the unbacked portion. I believe this last plate received 150 times more exposure than was necessary to produce a dense black image. I come to the conclusion that if a high light in an interior requires, say, one second exposure, sixty to eighty times that to get details in the darker portions of the building may safely be given when you are using a plate backed with black paper. Unquestionably the black paper is useful, but in extreme cases it falls far short of our requirements, and is then very much inferior to a good commercially backed plate.

"In all these experiments a two-grain per ounce pyro-soda developer was used, and the factor (twelve) adhered to.

"Incidentally I may mention that I was unable to conclude that backing rendered a plate less sensitive, as the image in all cases appeared on the backed and unbacked portions simultaneously."

NOTES FROM MY NOTEBOOK.

BY ALEXANDER MACKIE.

ISOCHROMATIC PLATES.

ALTHOUGH from the first institution of photography it was recognized that truth to nature was not to be relied upon in productions of the camera on account of the faulty rendering of the relative tone values of objects of different colors, it is strange how very little attention was paid by photographers generally to the possibilities afforded by the use of color-sensitive plates of substantially rectifying this faulty rendering when plates of this character were first introduced. They seem to have been avoided as something uncanny. Now there is a danger of going to the other extreme, and using the power of modifying the ordinary photogram recklessly and indiscriminately. Under normal conditions an isochromatic plate acts almost precisely as an ordinary plate, but it can be made to do much more. So much more indeed that it is quite easy, inadvertently, to produce a result on it more false than the ordinary photogram with the fault in the other direction. It by no means follows, therefore, that the use of a color sensitive plate ensures a gain in correctness. In using the plate without a light filter whatever difference is obtained will be a gain, but a light filter of unsuitable color or excessive depth necessarily produces faulty rendering of tones. There are plenty of examples about from negatives of yellow flowers, which are rendered as white flowers, and of landscapes in which all sense of distance is lost owing to the use of unsuitable screens. The choice of the screen for landscape photography particularly requires judgment. The same treatment that would render a bunch of blue and yellow flowers in correct relation would under most circumstances give an unnatural transcript of a field of wild mustard under a blue sky. Pictorial effect often requires a sacrifice of actual truth to secure the semblance of truth, and the repose of a hazy distance, often an essential point in making a picture, may be lost, and the clouds may be rendered with an unrealistic solidity by a slight miscalculation in the use of a screen. Isochromatic plates place a great power in our hands, but it is a power that can easily be misused.

OLD DEVELOPING SOLUTIONS.

Of all fields for experiment in photography one would imagine that most thoroughly explored would be the influence of modifications of the developer upon the negative, yet one could hardly find half a dozen photographers in conclave who would agree upon even simple points in connection with the subject, which a single experiment, conducted scientifically, would definitely settle. It is difficult to imagine how the idea arose that an old, previously used developer is the best for an overexposed plate; it is still more difficult to understand why this legend of the Middle Ages gets repeated whenever the introduction of a new developing agent affords the opportunity. Probably the fact that an old developer acts slowly, and in this respect similarly to a highly restrained developer, originated the conception that their other properties are alike, or it may be that it was assumed that a used developer must have acquired an addition of bromide from the reduced bromide of silver of the plate, and that this was equal to an addition of bromide to the developer. If anyone who indulges in rapid hand-camera work, and has to get the most out of plates which have received the minimum of exposure will, by the very simple experiment of comparing the results he gets,

using freshly prepared developer with those obtained, using the same developer after it has been kept until partially oxidized, exercising sufficient patience with the latter to arrive at the same stage of development, he will doubtless discover that there is a desirable quality given by the slower development which is absent in the negatives developed in the ordinary way. Still greater will he find the difference in the resulting prints. If it be admitted that the quality of the negative is influenced by the method of preparing the developer, it stands to reason that the method which gives the best results with under-exposed plates will not give the best results with those over-exposed; hence, if old developer helps toward securing those qualities which under-exposure is inimical to, to apply the same developer to plates which are unexposed, and which consequently require treatment of a different and opposite character, is clearly the wrong procedure.—*The Photogram.*

BRITISH PHOTOGRAPHY AT THE WORLD'S FAIR.

THE following extracts from an article, evidently inspired, published in *The Amateur Photographer* of April 14th will give to the American reader a better insight into the condition of affairs as they pertain to the British Photographic exhibits at St. Louis than will perhaps be possible in any other way. It must be remembered that the able editor of the *Amateur Photographer*, Mr. A. Horsley Hinton, has just arrived in this country charged with the honor and duty of arranging and hanging the entire collection of British photographic work at the World's Fair, and it may be taken for granted that any article appearing in his journal, even though he may be absent from the editorial chair himself, voices public sentiment in a matter of this kind. We believe that with this explanation the extracts below will be of exceeding interest to all who are at all in touch with the existing conditions.—[ED. W. P. M.

"On the Royal Commission photography is represented by Sir Benjamin Stone, unless we add Mr. J. W. Swan, who, however, may be regarded as more particularly representing the interests of chemistry. Under the Commission, sectional chairmen—men of special knowledge—are appointed, and each gathers round him as a committee those most capable of doing the work in hand. No one will dispute the pre-eminent suitability for photographic chairmanship of Sir William Abney. We are apt to associate him only with the physical or scientific side of photography, but his wide experience of public service has given him breadth of mind, and he at once saw it was part of his public duty to take care that Great Britain was very fully represented on the pictorial side. To strengthen his committee in this respect, he turned to those who had in recent years most prominently identified themselves with the modern pictorial advance.

"He communicated with Mr. Hinton, Mr. George Davison, and Mr. Reginald Craigie, who met several times, and after going carefully through the Royal and Salon Catalogues for the past few years, drew up a list of some three hundred odd pictures which they thought representative of British pictorial photography.

"Mr. Hinton arranged space, devised designs and chose material for the wall decoration, etc. This was all done in conference with Sir Benjamin Stone, as Royal Commissioner, Sir William Abney as Chairman of Section Sixteen (Photography) and the general officials of the Royal Commission.

"From all accounts, Great Britain will in photography be better represented than any other country. Mr. Hinton is to superintend the hanging of nine hundred frames of British work included in the Record, Scientific, and Pictorial Classes. The Record Section will be of the greatest interest to our American cousins, who value more highly than we do our antiquities and historical remains. There will be three hundred pictures from Sir Benjamin Stone's unique collection of record and survey prints, which he has had framed and sent over at his own ex-

pense. In connection with the Scientific Section, Sir William Abney asked the aid of the Royal Photographic Society, and Mr. Bartlett, the secretary, was placed on the committee for Section Sixteen. J. Craig Annan has been asked to join the Board of Judges on behalf of Great Britain."

PHOTOGRAPHERS' ASSOCIATION OF WISCONSIN.

THE Eighth Annual Convention of the Photographers' Association of Wisconsin was held in Milwaukee, April 27th, 28th, and 29th, with a large attendance and lots of enthusiasm.

Demonstrations were given in developing papers by Mr. Cross; posing and lighting by Mr. H. C. Watton; bromide enlarging by Mr. Duryea, using the Cooper Hewitt mercury vapor lamp for his demonstration; posing and lighting by Mr. E. C. Berryman; posing and lighting with a flashlight by Mr. Geo. G. Holloway, assisted by Mr. Nichols; in toning prints and handling photographic papers, by Messrs. H. E. Smith and F. F. Hazelott.

Addresses were delivered by Mr. A. A. Bish, of Chippewa Falls, on "Some of the Qualifications of the Successful Photographer;" Geo. G. Holloway, Secretary of the National Association, on "Starting Right;" Geo. M. Bolton, Secretary of New England Association, on "Child Portraiture;" Mr. F. L. Deardorff, on "The Use and Care of Photographic Lenses;" Mr. S. Lawrence, on "The Use of the Diaphragm and the Swing-back." We hope to publish abstracts of some of these addresses in the next issue of this MAGAZINE. Geo. M. Bolton, in an address subsequent to that on "Child Portraiture" called attention to the importance of the photographer of to-day employing business methods and associating with business people, thereby advancing the interest of the studio. He specially spoke of the need of proper advertising, and suggested the sending out of booklets with a follow-up system. Secretary Bandtel made a special plea for the larger education of photographers, pointing out the importance and necessity of reading the photographic literature of the day, and suggested a few good magazines.

The next Convention will be held in Milwaukee, the following officers having been re-elected: President: B. A. Rice; Vice-President: E. C. Berryman; Secretary: J. M. Bandtel.

Mr. E. P. Billings was elected 2d Vice-President, and Mr. A. A. Bish was elected Treasurer in the place of Mr. Pryor, who retired at his own request. A vote of thanks was tendered Mr. Pryor by the Association for his faithful services.

Among the matters passed upon by the Association was the question of co-operation with other States and with the National Association, Wisconsin pledging herself to the hearty support of the latter and any co-operation that might be practicable with the other State conventions.

Resolutions were adopted favoring a uniform rating by all State Associations, to be based upon a given number of points reached by the competitors under the following general classifications, namely, 100 points to be the maximum, and to be divided under posing and lighting, chemical effect, general excellence, etc., each classification should be allotted a given number of points as its maximum attainment.

The Cup in the Trophy Class was, after a very close competition, awarded to President A. B. Rice. One of J. H. Field's pictures, entitled "The Top Spinner," was selected for the Interstate Exhibit, and pictures selected to represent the Wisconsin Association at the National Convention from exhibits by J. H. Field, W. A. Pryor, Klein & Guttenstein, J. M. Bandtel, B. A. Rice, H. A. Lyman, B. J. Brown, H. J. Leonard, Cora M. Buck, E. B. Berryman, H. S. Miller, E. D. Froutschy, C. E. Wright, and T. E. Bennett.

EDITOR'S TABLE.

THE fifth number of Mr. H. SNOWDEN WARD'S very interesting series of articles on the "Portrait and the Studio," treating of Mrs. Käsebier's interpretation of his portrait was received in due season and at once put in type for the June issue of this MAGAZINE. Unfortunately, however, when the plates were received from England, for its illustration, it was discovered that they had been badly injured and defaced in transit. Rather than use these damaged cuts, which would have injured the general appearance of the MAGAZINE, and which would have done injustice to Mrs. Käsebier and the sitter as well, we have decided to omit the number from this issue and to hold it over for a later issue in the hope of having a new set of plates meantime. These have been ordered, and are expected in season for use in the July number. The editor sincerely regrets the necessity which has arisen for again breaking the continuity of the series, but believes the readers of WILSON'S will prefer to wait and have the article complete than to take it in any other form.

THE A. M. COLLINS MANUFACTURING COMPANY announces a paste which will mount photographs on thin supports without cockling. This is something that the photographer has long sought, and interested inquirers are requested to send ten two-cent stamps to the A. M. Collins Manufacturing Company of Philadelphia, Pa., for a three-ounce sample jar of the "S" Brand.

A PRIVATE view of prints and lantern-slides was given on May 4th by the Brooklyn Academy of Photography at its rooms, 177 Montague Street, Brooklyn, N. Y. The work of the club is distinctly good, and the display of both slides and prints was creditable in the extreme. There seems to be a forward movement in photography this spring, and a better average of quality than has been noticeable for several seasons past. This tendency was noticeable in the work displayed by this club. An examination of a really good display of amateur work is always interesting and should be extremely valuable to the professional photographer; and while in it may often be found a demonstration of what not to do and how not to do it, it is scarcely possible to view such a collection without finding many good suggestions. It may further be said that these suggestions are so different from those to be had at a professional exhibit as often to open up entirely new lines of thought and action.

The Photographic Times-Bulletin comes out with the announcement that it has severed all connections with any photographic supply house, manufacturing business, or other trade interests, and will henceforth be published as an absolutely free and independent magazine, devoted exclusively to the advancement of pictorial and scientific photography and the interests of all photographers, professional and amateur. This is an innovation of interest when it is remembered that the *Times-Bulletin* is the outgrowth of the two oldest trade publications representing the photographic interests in this country. *Anthony's Photographic Bulletin*, and the *Photographic Times*, published for many years by E. H. and T. Anthony & Co., and the Scovill & Adams Co., respectively, were merged into the *Times-Bulletin* when the two firms joined interests some two or three years ago. The *Times-Bulletin* has for so many years represented the interests of these two powerful stock houses that it will seem strange now to view it henceforth as an independent publication. Its active editorial management will still be in the hands of Mr. Spencer B. Hord.

SOME remarkable enlargements are to be seen in many of the photographic stores throughout the country. They are issued by Taylor, Taylor & Hobson to show the possibilities of a Cooke anastigmat, and, though measuring something like 16 x 20, they are direct from 5 x 7 negatives. One of them shows three racehorses going at full speed within only a few feet of the camera and at right angles to the lens axis. A small half-tone of this subject is shown in our advertising pages this month. The pictures are by J. C. Hemment of New York, and are worth examining by those interested in high-speed photography.

THE ELYSIAN CAMERA CLUB, Hoboken, N. J., began a competition January 1, 1903, offering a cup to the member exhibiting the finest marine subject during the year, each member to be permitted to exhibit one view. The cup has been awarded to Mr. William Peterson, who made the winning negative with a Bausch & Lomb Plastigmat Lens. The Bausch & Lomb Optical Company, Rochester, N. Y., would be glad to have the addresses of all photographers who win prizes with negatives made with their lenses and to arrange with them for copies of the prize-winning prints.

PHOTOGRAPHERS visiting the World's Fair are reminded of an advertisement in another column of this publication calling attention to the advantages offered by the World's Fair Headquarters for Photographers, under the management of Mr. W. J. Hazenstab, who is now, and has been for the past twenty-five years, connected with the well-known photographic supply house of H. A. HYATT, at St. Louis. Mr. Hazenstab will be glad to send printed matter, references, etc., to all inquirers.

MR. MILTON WAIDE and his *One-Man Method of Photography* is a good illustration of the modern, hustling, progressive photographer. Having some

thing to say, he says it. His little book giving outlines and methods of putting his plan of work into operation is announced in another column of this issue. We understand that the edition is nearly exhausted and that it is doubtful if another will be published.

The Photographer, issued every Saturday, is a newcomer into the field of photographic literature. There have been several attempts in this country during the past two decades to establish a weekly photographic journal, but so far as we are aware each of these attempts has failed to find the necessary support. The publishers of *The Photographer* essay to change these conditions, and have produced a publication which in its two first numbers is very interesting. The publication is of large size, measuring 9½ x 14 inches, and is attractively gotten up. In its prospectus we find that its aim is to give voice to "the best sentiments and ideals of both professionals and amateurs." In the numbers already published this aim has been well met. A preponderance of matter, however, is devoted to the work of the amateur, both in text and illustration. We find in its list of contributors and editorial staff a number of well-known names, and shall watch with interest its progress in the photographic world. Its price is ten cents weekly, and it may be had at any news stand and at bookstores generally. Its editorial staff includes as its principal editor, Mr. Juan C. Abel, who needs no introduction to the photographic reading public.

SPECIAL attention is called to the announcement on another page covering the products of the well-known supply house of G. GENNERT & CO., of this city. This house has long been known as a thoroughly reliable source from which to obtain photographic supplies of all kinds, as it has in later years demonstrated its ability to keep in the front rank of the rapidly moving photographic procession. A bunch of circulars and booklets that may be had on application will convey a lot of information on photographic matters that will prove useful to the progressive photographer. "Let the postman be your errand boy," and send for a bunch of circulars.

THE first American Photographic Salon open to professionals and amateurs is announced to be held at the Clausen Galleries, 381 Fifth Avenue, New York City, December 5th to 17th, 1904, under the auspices of the Metropolitan Club of New York. The jury contains the names of many well-known painters who will pass upon the artistic excellence of each picture submitted before it can be accepted for hanging. Full particulars may be had by addressing the secretary, S. C. Bullenkamp, 102 West 101st Street, New York City.

THE fifth number of Professor Cook's book, *More Light in Negative Making*, is just received, and deals of mixing and compounding chemicals. It treats of chemical and physical changes of substance, density or specific gravity, weights and measures, and the compounding of solutions. The price of the booklet is 75 cents, published by David J. Cooke, Effingham, Ill.

THE good qualities of the Hammer Dry Plate have never been more in evidence than they are at the present time. Enlarged facilities for their manufacture and the most perfect modern machinery, coupled with a rigid inspection of every batch of plates manufactured, have resulted in a product of uniformly good quality throughout. Hammer Plates are made in such variety of speeds and working quality as to fit them to every requirement of modern photography, either in the field or in the studio.

The announcements of this firm in our advertising pages are full of interest from month to month, and are serving to introduce the Hammer Pates to many who have not known them before. The introduction is in most cases all that is necessary; the plates do the rest, and the demands upon the capacity of the factories are steadily increasing.

The Practical Photographer, American Library Series, vol. i, No. 1, is before us from the PHOTO ERA PUBLISHING CO., of Boston. This volume is the first of a series of monthly publications each of which will treat of some practical photographic question from the view-point of different workers. The first number contains a comprehensive treatise on trimming, mounting, and framing, and offers a series of suggestions and methods of great value to the beginner in photography. It is a volume of seventy-two pages, well printed and bound, and finely illustrated. It is listed to sell at 25 cents per copy. *The Practical Photographer* will undoubtedly find a worthy field and many appreciative readers. We look for future numbers with interest.

Who Discovered Photography? vol. v, No. 60, of the *Photo Miniature* for March, 1905. Under the above title there has lately appeared a book that should be of rare interest to everyone engaged in the photographic profession. Within its covers are contained a number of chapters dealing with the discovery and application of photography, very carefully arranged and grouped in chronological order, in which is clearly set forth the history of this most important art from its earliest inception.

The treatise is one that should be in the hands of every photographer who loves his profession, the history of which is too little known to the large majority of workers. There have appeared from time to time other publications treating of this subject matter, but none of which we know wherein the story is recorded with greater precision, conciseness, and interest. It constitutes a valuable addition to the photographic literature of the present day. Tennant & Ward, publishers, 287 Fourth Avenue, New York. Price, 25 cents.

By the Allan-Barker Studio, Newark, N. J.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. JULY, 1904. No. 571.

PRODUCING PICTURES BY MEANS OF HEAT.

BY A. J. JARMAN.

A GREAT deal has lately been said and written about the photographic effect of the rays emitted by radium and other similar bodies. In every instance it has been observed that when such bodies as radium are submitted to a very low temperature the power of radiation is greatly affected or reduced.

It is a well-known axiom in chemistry that heat aids chemical action. In many photographic operations this is recognized—for instance, in cold weather in the development of plates the temperature of the developer must be increased to obtain the full benefit of its action; if this is not attended to the resultant negative is poor and thin, which subsequent intensification does but little to improve. An operation common in the dark-room demonstrates this fact, when, for instance, a little further action is needed to force the development of the face in a portrait negative, and the operator breathes his warm breath upon that part of the negative where the forcing of the developing action is required. The result is that where the warmth has been applied the development proceeds with increased vigor. Another instance may be also noted where an increase of temperature brings about the necessary effect, namely, the slight warming of the toning bath and wash water in the process of toning to enable the toning to proceed at a proper rate. Without this slight increase of temperature toning will not take place. But a bleaching of the prints sets in, and the rich color that a good toning bath will give under ordinary circumstances is changed to a sickly gray tinged with brown. Again, in the development of platinum prints it is at all times necessary to increase the temperature to 60° or 70° Fahr. to obtain the best effect, because this slight temperature aids in reducing the platinum before the sensitive coating becomes washed off the paper. Where the wet collodion process is employed, as in the production of negatives for the half-tone and line processes of to-day, it is well known that the nitrate of silver bath and all the chemicals used for development and intensification must be worked at a temperature of 60° or 70° Fahr. to obtain the best results. It is, therefore, apparent that heat plays an important part in aiding the action of the chemicals in the production of pictures ordinarily in photography.

There is another important point that has received very little attention in the production of pictures upon the sensitive surfaces of both photographic plates and paper. Whatever the true action of radiation may be, it has been proved experimentally that the calorific rays are capable of producing pictures which become manifest by several processes of development. These rays may be due to imponderable matter, a theory held by Sir Isaac Newton, and very clearly explained by him in the emissive theory of light. Such keen observers as Dr. Herschel and Sir H. Englefield maintained and proved by experiment

that matter set in motion by the sun has the power of producing heat without light. There is further proof of the radiant power of the calorific rays in that wonderful little instrument to be seen in many opticians' windows, the "Radiometer," the invention of Sir William Crookes, an instrument, by the way, that was the forerunner of the modern incandescent electric lamp; through the high degree of vacuum obtained within the glass bulb, the method of obtaining the vacuum was adopted for the production of this modern lamp.

There is a radiative power emitted by nitrate of uranium which is capable of affecting a sensitive photographic surface and producing pictures of any object placed between a bottle of this salt and a sensitive plate after several hours' close approach in complete darkness.

The production of pictures direct by the heat rays is easily and readily accomplished in several ways about to be described; take for example, an illustration from a newspaper, place it upon a sensitive dry plate in the dark-room in an ordinary printing-frame, place in the frame a piece of plain glass covered with black paper upon both sides so as to exclude all actinic light. Having placed the print or cutting upon the blackened paper, lay the sensitive plate upon the print, cover the back of the plate with black paper, and pad and adjust the back of the printing-frame by the springs. Now wrap the frame up completely with a black velvet cloth, and expose the part of the frame to the heat emitted from a stove or open fire for half an hour to one hour, remove the frame and place it aside to become perfectly cooled off. A good plan to follow is to make the exposure in the evening. Stand the frame and its contents in the dark-room for the night. This will give sufficient time for the gradual cooling off to the temperature of the dark-room. Now remove the plate and proceed to develop it in the usual way. It will be found that a transparency is the result. It will sometimes happen, if there is printing upon the back of the picture, that an image of the letters is developed at the same time.

If a piece of well-cleaned sheet copper is employed instead of the sensitive plate, and treated in the manner above described, it will be found that a well-defined image is produced by simply breathing upon the surface. If a plate of silvered copper be used instead of plain sheet copper, and the surface after cooling be exposed to the vapor of mercury, a perfect image is produced precisely like the daguerreotype.

An experiment that was made by Dr. Draper, and published in the *Philosophical Magazine* for September 1840, is very remarkable. He says: "That if a cold metallic reflector has an object such as a coin, a small key, or a metal button placed upon it, and the surface breathed upon well, that when the mirror has become cold a spectral image of the object may be produced at will, as often as it is breathed upon, and that the phenomenon may be exhibited for many days after the first experiment has been made."

Dissimilar metals give the best results. A gold coin, a steel key, or a small iron washer placed upon a bright copper plate, and the plate heated over a spirit lamp, only slightly, will produce very perfect images when breathed upon after cooling; or, if the plate is submitted to the vapor of mercury, a more permanent image is obtained. Different colored pieces of glass will also affect the surface of either copper or silver-plated copper in very pronounced manner, when the plate is submitted to a gentle heat only. If an experiment be made by placing upon a piece of silvered copper plate or plain copper plate different objects such as small strips of colored glass, figures and patterns cut out of thin cardboard, each one painted in different colors, and the whole exposed to the sun's rays, it will be found that those objects that possess the greatest power of absorbing the heat rays will produce the most distinct images. This goes to prove that the heat rays have been instrumental in producing the picture and not those of actinic light as such is understood. Metallic plates are not the only articles that are subject to the influence of the calorific rays. Many kinds of prepared photographic papers are affected by heat, especially papers that have been prepared with the iodide and nitrate of silver. Steel engravings and many kinds of prints can be copied by this means when the calorific rays alone are employed. Even common tin plate is

affected by heat to such a degree that by prolonged contact with some objects away from any actinic light an image is plainly discernible by simply breathing upon the metal.

The production of pictures by means of heat is not at all a difficult one, and many very interesting experiments can be made by anyone at a trifling cost. It is a subject that has not received the attention it deserves. It is quite possible that several processes could be developed and made commercially valuable by careful investigation, which at the same time would prove of advantage, because heat is at all times more easily generated than a high quality of actinic light which is so necessary at the present time for the production of the photograph. The name "Thermographie" has been proposed, which would well fit this method of producing pictures.

SOME QUALIFICATIONS OF A SUCCESSFUL PHOTOGRAPHER.

THE following address, delivered by Mr. A. A. Bish, of Chippewa Falls, Wis., before the Eighth Annual Convention of the Photographers' Association of Wisconsin, contains a fund of advice and suggestion which, if followed by professional photographers, will do much to raise the standard of our profession. There are, it seems to us, times in the history of any craft or profession when the special matter most required by their workers is that which deals with technique, method or formula. This time has, we believe, been reached and passed in photography, and the crying need of our profession to-day is along ethical lines.

Mr. Bish has touched most happily and forcibly a number of leading points, and in publishing his address in full we believe WILSON'S PHOTOGRAPHIC MAGAZINE is doing a service to photography which it would be remiss in neglecting.—[ED. W. P. M.]

Mr. President, Ladies, and Gentlemen of the Convention:

The subject assigned to me, "Some of the Qualifications of the Successful Photographer," is a subject of much importance to the profession, and one on which much of interest might be said. That some men succeed in photography and others do not, as is the case in all other lines of human endeavor, is to be expected; but to be able to prove absolutely just why one man can succeed when another in the same field of usefulness fails dismally is not an easy task.

For the past ten years those of us who have been attending these conventions have heard much about the art side of photography—have heard it from those who are authorities on this subject. Not only have we listened with profit to the artists with brush and pencil, but to those who are equally as artistic (in their field) with that magic tool, the camera. To-day the results of this education on the mass of photographers, as shown by the high class of work now done as compared to that produced even in the early nineties of the past century, is simply wonderful. We were not then so well aware of our many weaknesses as we are to-day, but no doubt the awakening came at an opportune time, and that period might even now be most appropriately called the "dark ages" of photography. Yet, let me assure you, my friends, we are as yet only well started toward the light of a brighter and a better day.

Now, as I have said, we have heard much about the picture-making side of photography (and it was sorely needed), yet it has been only within the past year or so that much has been said, either on the platform or through the columns of our professional magazines, on the subjects pertaining to the business side of our profession.

I will not attempt to define a successful photographer, but will, rather, endeavor to call the attention of those of us here to-day to some of the things that, in my judgment, go far toward making a man successful, whether he be engaged in this business in the city or in the country towns; but more especially may these remarks apply to the worker in the smaller cities, as it is here that he comes into closer

communion, as it were, with his fellowmen and with his customer.

Now, in order to discuss this matter, I propose to classify my few remarks under the following heads, namely: (1) Honesty, (2) Health, (3) Ability, (4) Industry, (5) Knowledge of the Business.

The first subject that claims our attention is "Honesty." I am sorry that there is so much that might be said on this theme. This virtue alone, if carefully practised in all our business and social relations, would do much to firmly establish the profession on the high plane where it rightfully belongs. I hold in my hand a business letter to a gentleman in my town from the proprietor of what, a few years ago, was, perhaps, one of the best known studios in the Middle West. I will now read this letter that you may better understand my point:

C——, I——, SEPT. 3, 1903.

MR. S—— J——,
CHIPPEWA FALLS, WIS.

DEAR SIR: Yours of Sept. 3, with check enclosed, at hand. Thanks.

We have never sent a portrait without a frame, and it is not safe—it would surely spoil the picture. Why not have one of our gold-leaf frames we wrote you about? Think either one would be beautiful. The patterns of the frames are of the latest designs. We can make up a frame for $18, a little narrower than the one we wrote about.

Would not advise you to get a cheap frame, as the portrait is beautiful, and you would surely spoil it. Awaiting your early reply, we remain

Yours truly,
I. SOAKEM ART CO.

Now, the portrait referred to in this letter was a sepia enlargement, finished and mounted on 16 x 20 cardboard, just as we all get them by mail or express from those who make a business of this class of work. The gentleman who brought me this letter is a customer of mine, a well-posted and well-to-do business man. He had placed the order for the portrait with this firm on my advice, as they had the original negative, he having only a small sepia platinum print from the same. He paid them $35 for this portrait, which was the price they had made him, but, as he expressed it, he did not propose to be held up for an $18 frame. I did not appear on the surface in this deal until he brought me this letter, inquiring of me if it were true that a picture of this character could not be sent safely unframed. I answered the letter myself, on my own business letter-head, and, I guess, rather pointedly, too, for the portrait came by return express, and, needless to say, it did *not* surely spoil it to send it without a frame, thus proving, in the mind of this customer, that this firm were either badly mistaken on the important point of shipment of their wares or else they were guilty of using unscrupulous and dishonest business methods. I dare say that the latter conclusion was the one arrived at in this case, and the firm has thereby lost a possible future customer, and the profession at large has at the same time been lowered just so much in his estimation. A man in any business who descends to methods, very properly called schemes and fakes, need not be surprised if he himself is classed with fakirs. The calibre of the man engaged in any business is what gives it standing. You may be an artist in your chosen line, but the profession to which you aspire is given credit or discredit in proportion to the way its individual members grace or disgrace it. The frame scheme, if it had come from some fake house, would have been different. Fakirs we will have with us perhaps, but let the gulf between us and their skin games be so wide that we cannot for one moment be classed with them.

Not only in these things, but in our work we are not honest with ourselves, or our patrons as well, unless we at all times do our very best, and even then strive to do better. It is not what we have within our grasp, but what we can see above and beyond us, and what we try for, that really helps us. Money is not the only thing we work for, and unquestionable business methods will drive more business away than all the ad. writers in the State can get and hold for you.

Now let us carefully examine ourselves on this most vital question and see if we are honest in our daily conduct of business, honest in our endeavor to better serve our patrons by taking advantage of

every opportunity to improve, not being content to rest on the glory of past achievements, or to entertain for a single moment the arrogant impression that we have reached the acme of artistic or technical excellence, which is only a sure sign of rapid and complete decay.

In the matter of "Health" I need not remind you of the great blessing that we enjoy in the possession of a sound body, and having this, we should guard it most carefully. In these modern times, with their attendant rush and bustle, the business man has much to try strength. Talents, either natural or acquired, cannot presume to take a high flight nor hold a steady course when housed in a diseased or pain-racked body. True, the photographer of to-day has been able to dispense with many obnoxious chemicals and not a little of the tedious and confining work which fell to the lot of the worker of other days, such as the preparation of his plates or paper, yet there is enough left of both to work havoc unless much care is exercised. Observance of careful habits and plenty of out-door exercise do much to assist nature in keeping healthy.

To those who are so inclined, a day or two taken occasionally from the daily grind, with rod or gun, is recommended, and I notice that those who combine out-door work along with that of the studio enjoy, as a rule, better health than those who do not do so, and from experience and observation I heartily endorse combining the two. A bright eye, a quick step and a cheerful manner indicate good health, and, possessing these, you are much better able to animate your sitter and assist in securing that indescribable "something," individuality, which is the perfume of the flower of portraiture.

So, aside from the added enjoyment we are able to get out of life, we owe it to ourselves to keep our bodies healthy, that we may better attain our full measure of usefulness.

I will now pass to the third topic, that of "Ability." By this I mean a fitness to perform a given work. Business ability counts for much. First, last, and all the time the photographer should study business methods as well as the technique of his profession. To be sure, the business end should not lead us near that dangerous rocky roof "money madness," yet it must be understood to be the motive-power in the studio which turns the wheels of progress.

Happy is the man who can combine the two in a clever way that neither the artistic on one hand nor the business end on the other seem to suffer. One thing especially I mention here, and that is, always carry out the promises that you make, even if you have to sit up nights in order to do so. We must be square-toed also in all our transactions, at the same time have it understood that you give full value for all money paid over your counter under all circumstances. One thing certain, our guns are all right, but very much depends upon the men behind the guns. *We must be men!* Men who have a capacity for independent action, not those burdened with moral stupidity, nor an infirmity of will that prevents one from "catching hold and lifting." Men who will not act for themselves will not count for much when the benefit of their effort is for all.

Next, perhaps, to his ability as a business man and a photographer nothing has so much to do toward making him successful, or otherwise, as does the manner in which he introduces his product to the public.

A few weeks ago I sat in the show-room of one of the leading studios on the Pacific coast, talking to the educated and wide-awake proprietor, when a lady stepped from the elevator and passed into the office. The saleslady was busy, it seems, and she came to the room in which we sat and asked the proprietor if he could show Mrs. A. her proofs. He arose, excused himself, and, stepping into the office, I heard him accost her pleasantly, not fawningly, mind you, after which, from my position in the show-room, I saw him indicate to her a chair near a window; he, seating himself opposite, began unrolling the proofs in question and sat discussing them with her in a quiet, business-like way. I could not help but think how differently those proofs might have been shown to her across a desk, without comment and without courtesy.

In the practice of medicine it is said that the personality is almost as valuable to a man as scientific knowledge, and you

can all, no doubt, now recall to mind some good doctor of experience in whose presence you never failed to notice that quiet, dignified, yet forceful individuality which seemed to render him so different from other men. This quality may be acquired, to a greater or less extent, by us all, and, by cultivation, may be made to shed its beneficent rays on all with whom we come in contact.

But, returning to business methods more properly, it seems to me that it would be better if we photographers would regard ourselves as business men, and not pose so much as artists only. We need not lose sight of the artistic excellence to which we must all aspire, but let us do business in a business-like way, and be of some economic value in the community in which we live.

I am informed that less than one-third of the photographers of this section—and this is no worse than other parts of our country—seem to have an account at the bank and to do business through the banks. This state of affairs cannot be true in other trade or professions. No manufacturer or merchant would think of doing business otherwise. I am also informed that it seems to be growing better slowly. Now I hope that everyone within sound of my voice who has not tried this will hasten to do so immediately on his return home. Have your book, and make it a business to deposit daily, or weekly at least, your receipts, against which you can check all bills, which you should always try to discount. This alone is quite an item, and will amount to more during the year than you imagine. Then you come in contact with people who do business correctly, and you will unconsciously acquire better business methods yourself. Then keep a simple set of books, keeping track of receipts, expenditures, and stock. If you do all this you will have less time to criticise the way our politicians run the Government or the equally stirring subject of hard times.

"Industry." Without industry a man cannot succeed in photography any more than he can in some other vocation. Unless you have a capacity for hard work of the most careful, painstaking kind you had better keep out of the ranks, or, if already in the business, the sooner you get out the better for all concerned. Honest labor degrades no one, but, on the contrary, it ennobles and enriches all. So much to do, and yet it is surprising how much you can accomplish if you keep pegging away. However, we must work intelligently, and we need not make tread-mills of our studio work. In a word, we must like the work and put our whole souls into it. The captains of to-day in the industrial world are not men who have tinkered with this and with that, nor have they frittered away their precious time on fads and fancies, but, having set their eyes on the mark aimed at, they have swerved neither to the left nor to the right until the goal is reached. Seest thou a man diligent in his calling; he shall surely prosper.

In conclusion, I wish to impress upon the minds of all that in order to enjoy a full measure of success in photography it is essential that one have a good broad knowledge of the subject, which comes through a liberal education. The principles of pure photography may be easily mastered, but when you have learned to focus a camera and develop a more or less printable image on a modern dry plate, it does not follow that you are a photographic artist any more than the young medical student is a doctor as he emerges, diploma in hand, from the class-room. Indeed, not as much, for, as a recent writer has said, the student of medicine or law has spent, and with good reason, much valuable time and not a little treasure in preparation in fitting himself to begin the practice of his profession, while, unfortunately, just the reverse is true of our work, or, at least, such has been the case in the past. We value a thing largely by what it has cost us in time and money; therefore, if a man or woman enter the broad field of labor armed with little or no training along either business or artistic lines, he or she cannot be expected to add weight or dignity to a vocation the past achievements or the future possibilities of which they are practically ignorant.

The Moseby Educational Committee of England spent the latter part of the past year in this country studying our educational system and the effect of the same on our men and women who are now being or have been trained in our business

schools, colleges or universities, and contrasting conditions here with those existing in England or, in fact, all Europe. Their report has lately been submitted to the people of England, and it makes rather interesting reading for us Americans. In most all cases this committee found the man here in this country who had a technical education, that is a trained mind and hand, after he had had some practical experience, more successful for himself or of more value to his employer than the same class in England, consequently more sought after to fill good positions. Our American mechanic and specialist knows not only the technique of his profession, but its history as well and its relations to other trades and professions. He is up-to-date always, for he reads his trade magazines and journals, thus keeping in touch with his brother workers; he is energetic, wide-awake and progressive; he has a keen appreciation of success and its attendant joys as well as a more philosophic view of adversity. Now, if this be true in other trades and professions in our country it should also be true of photography, for, as in music, painting and other kindred arts, photography appeals to the higher and better nature of man.

A few educated men with some art training and a love for the work have done more in the past few years toward securing a recognition of the merits of photography than all the combined plodding of forty years of photographers. The day of the all-round man is past. We are now in the age of specialists. As yet, perhaps, only a few have had the courage to break away from the beaten path, but the result of their success, where known, will only be the means of bringing more and more to the breach, and what will be the result, you ask. It will be this. Each man in his chosen line will develop to the highest point his branch of the work, while his co-worker will do likewise in his. The puplic appreciation will follow even more rapidly than it now does, and as the call for still better work increases, as the public state is educated, the remuneration will increase as well as the demand. Then the unprincipled and dishonest man, the man with little or no ability, the lazy man or the one with little pride in his work or in his profession, will fall farther and farther in the rear, while the intelligent, earnest disciple of the great Daguerre will succeed to the field which is now almost deserted by the portrait painters.

ON TONING BROMIDE AND GASLIGHT PAPERS.

THE following article is reprinted from *Photography*, and forms part of a valuable series of articles contributed to that journal by Mr. R. E. Blake Smith. In a previous paper Mr. Smith treats of the development of bromide and gaslight prints, advocating the use of such developing agents as amidol, metol, hydroquinone, etc., rather than ferrous oxalate. In this article he treats of the redevelopment of the image and the production of warm tones by development. With the increasing use of bromide paper in special lines of studio work, and of gaslight papers in many of our progressive studios, Mr. Smith's investigations will be read with interest and profit.—[ED. W. P. M.]

It may very likely be the case that the color of the image obtained on bromide or gaslight papers is either a greenish or rusty black or gray. The print as it stands in this case is useless. There are three or four methods of improving it by depositing on it some foreign substance, but in this paper consideration will be confined to a method of chlorinating the silver image, and then redeveloping it to silver again. This method is, on the whole, the best I know for the improvement of badly toned prints.

The procedure of bleaching the silver image of a bromide print and then redeveloping has been proposed for various purposes; but, as far as I am aware, it has not been proposed as a method of remedying "rustiness" and greenish blacks. It is certainly nothing like as well known as it deserves to be. Even images which are distinctly brown in color can be rendered an excellent black or gray.

To carry it out the prints should first be bleached in:

Potassium Bichromate	90 grains.
Concentrated Sulphuric Acid	200–400 minims.
Sodium Chloride (common salt)	1 ounce.
Water	10 ounces.

The prints are sufficiently bleached after an immersion of from five to ten minutes in this solution. The larger the quantity of sulphuric acid present the quicker the bleaching. After bleaching the prints are washed in water till all the bichromate is washed out. Some people have found it necessary to give prints bleached in a bichromate bath such as the above an alum bath previous to washing, in order to facilitate the elimination of the bichromate or chromic acid. This is very likely due to the fact that the actual bath used contained too much bichromate and too little acid. At all events, I have never experienced any difficulty in washing the prints free from chrome stain; ten minutes or a quarter of an hour in running water has always appeared to be long enough. However, if anyone is troubled with the necessity of prolonged washing, the alum bath will be found a complete remedy.

The following is an excellent redeveloper:

Metol	45 grains.
Sodium Sulphite	130 "
Sodium Carbonate	270 "
Water to	10 ounces.

No potassium bromide should be used. It is very important in the case of the application of such a redeveloper to a chlorinated print to be on the lookout for silver sulphite complications.

The redeveloper must be so mixed as to dodge any chance of general fog being produced. The production of general fog in this case by the employment of an unsuitably mixed developer exhibits the fog-producing action of sodium sulphite very well, for here no general fog can be produced except by silver passing into solution. The action of the metol redeveloper just given is apparently so powerful and rapid that any silver sulphite solution formed is decomposed *in situ* at once.

Ferrous oxalate (one part of a saturated solution of ferrous sulphate added to six parts of saturated solution of neutral potassium oxalate) is a very good redeveloper; but, of course needs an acid-clearing solution after it. There is not the same objection to the use of an acid-clearing bath in this case as in the case of primary development, because the operation is not performed in the dark-room, and there is no fixing bath to follow.

There is, of course, no harm in fixing a redeveloped print, but it is quite unnecessary, and therefore better not to do so, for no unnecessary hypo should be ever introduced into a print. All that must be seen to is that redevelopment is complete; and this can be confidently assumed to be the case when the print has been exposed to the action of the developer for a period of time twice as long as that taken to complete the visible effect. In case of doubt, however, fixing should be resorted to.

After redevelopment, the print, of course, must be thoroughly washed in water. The whole of the bleaching and redeveloping operations should be done in a normally lighted room.

Chlorinated bromide paper is readily redeveloped when quite unexposed to actinic light; but gaslight papers after chlorination are not so easily redeveloped under these circumstances. It does not appear that any definite and particular exposure to light is of importance, but a certain degree of exposure is advisable as helping the redevelopment; and, as I have just said, this can be most easily attained by performing all the operations in actinic light.

Silver iodide is not suitable for redevelopment, owing to its stability; and silver bromide, which is also more stable than the chloride and harder to reduce, does not give such pure blacks and grays.

Silver ferrocyanide will with a suitable developer, as the metol formula above given, yield good black and gray tones; but ferrous oxalate does not give such good results with silver ferrocyanide as it does with silver chloride.

A suitable bleaching solution for converting the silver of the image into silver ferrocyanide is:

Potassium Ferricyanide	140 grains.
Ammonium Bromide	180 grains.
Water to	10 ounces.

After using this the print must be washed in water till no yellow color remains in the

print. It is, of course, possible to bleach and redevelop a second time; but I have never observed any advantage from doing so.

The chlorination and redevelopment of a silver image by the methods just advised, besides improving the tone, cause a slight but undoubted intensification. The state of the aggregation of the silver molecules is altered to some extent; and so not only is the color of the deposit altered, but its body or covering power is also increased.

If P. O. P. be printed slightly darker than when gold toning is going to be resorted to, and then simply washed and fixed and again washed, it can be bleached in the bichromate-chloride bath, and then the silver chloride reduced to metallic silver with the metol redeveloper. The print finally obtained by this proceeding has a black silver image. The tones, however, as a rule, are not good, but can be improved by subsequent treatment. This method of dealing with P. O. P. is probably one of theoretical interest.

Having dealt with black silver tones, let us pass to warm colored ones. Here it is best to invert the former order of consideration, and to deal first with gaslight papers. The silver haloid contained in the emulsion on these papers is either wholly or chiefly the chloride.

Now, silver produced by the reduction of silver chloride, by varying the method of reduction, can be made to assume different states of aggregation, and so to appear in many differently colored forms. Gaslight papers can be so exposed and developed as to yield images of many colors. The conditions for the production of warm-colored images are overexposure and development, with either a much diluted and restrained phenolic developer (metol, amidol, etc.), or else, which is much better, the ferrous citrate developer.

When warm-colored prints are desired, the quality of paper used should be that adapted to give rather hard contrasty effects when black tones are produced on it from ordinary negatives. The exposure for warm colors must be made to suit the actual developer used. The contrasts obtainable must be made the first consideration, and not the tone, just as in the case where the black tones are produced. If with any developer suitable rendering of contrast cannot be obtained at the same time as the desired tone, the developer must be changed. Of course, with some negatives a longer exposure can be given than with others without spoiling the gradation of the contrasts.

As the longer the exposure is with any developer, the warmer becomes the tone, so the tone obtained from some negatives will be warmer than that obtained from others, the developer remaining the same.

The following is a developer which will be found suitable for warm-colored images:

STOCK SOLUTION I.

Hydroquinone		30 grains.
Metol		8 "
Potassium Bromide		1–2 "
Sodium Sulphite		200 "
Sodium Carbonate		290 "
Water	to	10 ounces.

STOCK SOLUTION II.

Ammonium Carbonate		½ ounce.
Ammonium Bromide		½ "
Water	to	10 ounces.

In order to show the method of employing this developer, the following examples are given:

BROWN TONES.—Exposure about four times normal.

No. I.		1½ ounces.
No. II.		70 minims.
Water	to	10 ounces.

WARM BROWN TONES.—Exposure about six times normal.

No. I.		1 ounce.
No. II.		190 minims.
Water	to	10 "

VERY WARM BROWN TONES.—Exposure about eight times normal.

No. I.		½ ounce.
No. II.		½ "
Water	to	10 ounces.

RED TONES.—Exposure about ten times normal.

No. I.		160 minims.
No. II.		100 "
Water	to	10 ounces.

In using a ferrous citrate developer the following solutions will be found serviceable:

STOCK SOLUTION I.

Ammonium Citrate		3 ounces.
Water	to	10 "

It is as a rule best to filter this solution, as the ammonium citrate generally met with is somewhat dirty.

STOCK SOLUTION II.

Citric Acid	3 ounces.
Water . . . . to	10 "

STOCK SOLUTION III.

Ferrous Sulphate . . .	3½ ounces.
Concentrated Sulphuric Acid .	25 minims.
Water . . . . to	10 "

STOCK SOLUTION IV.

Sodium Chloride (common salt)	1 ounce.
Water . . . . to	10 ounces.

The following examples of the use of the above solutions are given:

BROWN TONES.—Exposure about four times normal.

No. I.	3 ounces.
No. III.	1 ounce.
No. IV.	10 minims.

No. IV is best added by means of a dropping bottle.

WARM BROWN TONES.—Exposure about six times normal.

No. I.	2 ounces.
No. II.	1 ounce.
No. III.	1 "
No. IV.	10 minims.

The small quantity of sodium chloride in the above formulæ restrains development somewhat, and prevents a tendency to the production of uneven tones, which generally shows itself in the absence of this substance. By increasing the amount of salt present in the developer we can lengthen the exposure and obtain warmer tones, *e. g.:*

RED TONES.—Exposure about nine times normal.

No. I.	2 ounces.
No. II.	1 ounce.
No. III.	1 "
No. IV.	100 minims.

Yellowish tones can be got by both the phenolic and ferrous citrate developers by still further modifying the formula used from that required to yield red tones. Very few, if any, are, however, to care for yellowish tones.

If colder tones are desired than are given by the first formula, the ammonium citrate solution can be partially replaced by a saturated solution of neutral potassium oxalate. Instead of using three ounces of ammonium citrate, two and three-quarter ounces are used, and from one-eighth to one-quarter of an ounce of the potassium oxalate solution added. The exposure in this case will be about three times the normal. No clearing bath is necessary with any of these citrate or citro-oxalate formulæ, but the prints must be well washed in water before fixing.

A formula giving warm black tones with gaslight papers is:

Edinol	32 grains.
Hydroquinone . . .	32 "
Acetone Sulphate . . .	96 "
Tribasic Sodium Phosphate .	512 "
Potassium Bromide . .	5 "
Water . . . . to	10 ounces.

The production of warm tones by development on gaslight papers is quite an easy and satisfactory process, although, as is only natural, it requires a little practice at first before the best results can be obtained. In the case of true bromide papers, however, it is not easy to obtain really warm tones in this manner.

It is easy enough to obtain warm black tones if such are admired. Suitably extended exposure and restrained development (*i. e.*, development with an abnormally large quantity of potassium bromide in the developer) will yield such tones; but there is a danger, at all events in the case of some developers, of getting greenish results. The use of acetone sulphite seems to be the best plan at present available.

Mr. Wade gives one of the best formulas yet given for this purpose. It is:

Edinol	20 grains.
Acetone Sulphate . . .	120 "
Potassium Carbonate . .	150 "
Water . . . . to	10 ounces.

Another on the same lines which works well is:

Adurol	30 grains.
Potassium Bromide . .	2½ "
Acetone Sulphite . . .	135 "
Sodium Carbonate (Na_2CO_3 to H_2O) . .	270 "
Water . . . . to	10 ounces.

The exposure must be varied to suit the tone as much as possible. Brown tones can be obtained on true bromide paper by using the metol-hydroquinone-ammonium carbonate developer given above. As an example:

No. I.	4 ounces;
No. II.	¼ ounce;
Water	10 ounces;

will serve. About four times the normal exposure is required. The ferrous citrate developer may also be employed.

The method of obtaining brown tones on true bromide paper by development has not been much worked with, and not much is apparently known about it. All I can say is that in my hands the method has never yielded pleasing results, and I do not think it is of much practical value. Only hard negatives are suitable for producing brown prints.

Some attempts at different times have been made to obtain warm tones on bromide and gaslight papers by bleaching the black or gray silver image to silver chloride, and then redeveloping with a developer of the kind used for producing warm tones on gaslight paper by primary development. The method certainly, on the face of it, looks very promising, but very little has come of it so far. Gaslight papers appear to give the best results.

Probably the lasting quality of a bromide print which has been carefully prepared and washed is much underrated by a good many people. A print normally developed from a rapid coarse-grained emulsion will certainly keep in splendid condition under ordinary circumstances for a great many years. Future experience will alone determine exactly how many. Though we cannot at present say anything very definite, there is good reason for believing that the probable life of a print will vary with the size of the silver particles forming the image. Certainly, the smaller the particles the more easily is the image acted on by chemical reagents. When normal development has been carried out, following a normal exposure, the size of the silver particles varies with the grain of the emulsion. With such prints, therefore, the lasting properties will probably vary with the emulsion from which they have been made.

The warm-toned images produced by modified exposure and development, being of finer grain, will in all probability be found to be inferior in permanency to the normal black ones.

ARTISTIC LIGHTING.

BY FELIX RAYMER.

How many times I have been asked the question "Can you not tell me some way in which I can work *my light*?" This is, of course, a personal question, and at first thought would appear to be one that it would be almost impossible to answer. When one has time to think over the matter and make some few calculations he will find that if he understands the principles of lighting he will be able to formulate some plan whereby even the most ignorant will be able to do something better in the way of portrait work. It is not so much the manner of working as the results we obtain; and let us fully understand that it is the results we are after, and not the way in which they are secured. I have been attending the State Conventions as well as the National Conventions for more years than I care to mention, and many times I am tempted to laugh in the face of some demonstrator or lecturer when he undertakes to tell an enlightened audience that his *way* is the way, and that all others are frauds or make-believes. What we are after is the principle of the thing, and then all that will be necessary will be to read until we know what that principle is. We shall then be able to better our condition and make artistic work, provided we study the detail and technique of the question.

The main problem with the average workman in the average studio is, "How am I to make the most of the light that I have on my hands, and how am I to make the best work under it?" This is the topic and the most important one that I have had under consideration for the past year or more; and all the time I have been trying to find out if there was any way in which such a question could be determined. After having tried about one hundred lights as opportunity has offered at the different conventions during the past five years, I have arrived at one conclusion, and that is that *light is light, and that all that is necessary will be for the workman to learn what he wants, and it will be an easy matter for him to attain his desires.*

In other words, there is a way by which any light (it matters not what the size or the pitch) may be worked and as good results obtained as by any other source. In proof of this assertion it is only necessary to mention the many workers of national reputation who are working skylights of entirely different construction from any others in the country, notably Mr. Ed. Rösch, of St. Louis, who has nothing but a straight, slant light, extending upward from its starting point to the highest point without a break of any kind. We might, without stopping to think the matter out and without knowing what we say, perhaps have the idea that such a light would be nothing more than a side light. This is entirely wrong, as we can make it either side or top light by the manner in which we pose the subject under it; and in proof of this we will mention that we have not seen for years any more artistic work than is done by Mr. Rösch under his perpendicular light.

On the other hand, we find other operators claiming that we must have a light that sets into the room in order to secure a fall of light from a certain angle. These claimants are those who are *mastered by their light and have not mastered the light.* To which class do you belong?

In connection with this article I submit a diagram of the floor of the operating

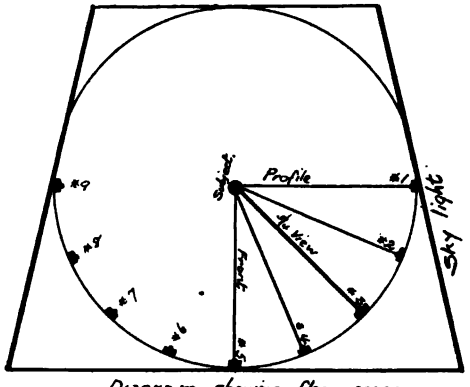

Diagram showing floor space.

room as it will be found under any light, it matters not what the size of the light may be. This diagram can by a little modification be carried out under any light, whether it be a single slant or a double slant light. All that will be necessary in working the single slant light will be to make allowance for a certain amount of top light and a certain amount of side light, and this can only be done by having the light divided in our mind's eye in such a way that in working it we will know that there is a certain part of it that will produce certain effects, and the other part will produce an entirely different effect. This we know to be so from the fact that the top light will not give the same effect that the side light will give, although this may in some measure be remedied by the manner in which we work the source of light. If we know how to produce the lighting in accordance with some principle, we can, without any trouble, produce this principle under either a single slant, double slant, side, or a top light, and get a truly artistic result. Feeling as I do in this matter, I cannot find it in my mind to take up the time of the readers and the space of the MAGAZINE to go into the matter of different lights producing certain results, as I firmly believe any man who truly understands his business will be able to produce good work under any light; and when I hear an operator saying that he cannot do his best work under any particular light, as he is not acquainted with it, I at once come to the conclusion that he does not amount to very much as an artistic workman.

It will be noticed by referring to the diagram that the darkest line in the drawing is marked three-quarter view. I mean by this that if the camera is placed at this point and the subject at the point indicated, a three-quarter view of the face can be obtained with better results than at any other place in the room. We will suppose that the subject has been posed at a distance say of nine feet from the side light; this will mean that the camera should be palced at a point that will be just half that distance from the light. In other words, if the subject has been placed at nine feet from the light, the camera should be four-and-a-half feet from it. Now, if the face of the subject is turned slowly toward the camera until the ear on the shadow side of the face is almost in view, this will be what we operators consider a three-quarter view of the face. After this pose of the face has been secured, with the proper lighting

on it, there the trouble of lighting should cease, as it all hinges on getting the first lighting effect right. I am well aware that there are those who contend that each effect of light must be made for itself. This has not been the experience of the very best operators in the country. When the lighting is once made there is not a point of view to be obtained but will show a perfect lighting. For example, if we have a perfect lighting at line number three, and will move the camera to the right until we reach the point indicated by line number two, we will still have the same lighting as in the former position of the camera, but the point of view will be different, and this is what we understand as choosing the best VIEW of our model's face. The lighting effect will be the same in any case. But the point of view will no doubt be a different matter, as that will be controlled entirely by the distance of the camera from the side light.

In the position of the camera for the three-quarter view we can see all of the face with the exception of the ear on the side of the face away from the camera, but in the position occupied by the camera at the point indicated by the line number two we can only see a very small portion of the face on the far side of the head. But the lighting has not been changed in the least. The same points of light known as high lights hold good in this view as in the former position. Now we will move the camera to the point indicated by the line numbered one, and this will be seen to give a full profile of the face. At this point there is but little shadow on the face as seen from the camera, but, nevertheless, the lighting will be the same, as the head has not been turned or in any way changed from the first position given. The change is made by moving the camera farther to the right until the different view of the face is secured. We will now move the camera to the extreme left of the floor line number five, or until we have it at exactly the same distance from the light as is the subject. When this is done it will be seen that the view of the face is entirely different, being a front view, but the effect of the lighting is the same, inasmuch as we have in nowise changed the opening of the light nor the subject. The only change in any of the foregoing cases was where we moved the camera either to the right or to the left; and it will be seen at once that it was an absolute impossibility to change the effect of the lighting. This brings us up to the point where we are ready to claim that if we but get the lighting right in the first place we will at all times after that have a perfect result, if we do not in any way change the source of our light nor move the subject. I have in the past few years heard many operators say that every face should be lighted not only for itself, but that the correct lighting should be chosen for each individual subject if the most artistic results are to be obtained. I do not believe that this is so. If one will take the trouble to look into every face he sees he will know at once that it would be an absolute impossibility to light each and every face in exactly the same manner. *I have never seen any two faces that would catch the light in the same way.* There are certain prominences in the face of one that will not be found in the face of another; and this will make one face look different under the light from the other face. But it was not due to any manipulation of the operator, for had he desired making one face appear as the other, he could not have done so. Therefore, I say, get the *principle* of the lighting, and it will suit any face. After having done this it will be found an easy thing to plan your work under any light. It can be done in such a systematic way that one can tell almost in inches where certain results can be secured.

By referring to the diagram it will be noticed that I have positions for the camera marked out on the left of the centre line. This I expect to take up in some future article, as these positions of the camera will give a different effect of lighting and different views of the face, but will in nowise necessitate the moving or changing of the subject from the position which was at first chosen. Operators many times make unnecessary work for themselves by changing the subject from one part of the room to another when all that is necessary is to get the lighting right in the beginning, and then change the camera and *not the subject.* If the light is right in one position it *must be right in any position.*

THE FUTURE OF PHOTOGRAPHY FOR EMPLOYES.

THE following article, published in a recent number of *The British Journal of Photography*, offers an opportunity for an insight into the methods that obtain in England and provides food for thought and reflection to photographers on this side of the water. It may readily be understood that the situation offers some very puzzling problems to our English cousins, and we believe that the system of apprenticeship is responsible for the growth of it. We have troubles of our own in this country, no doubt, but this is one that is foreign to us.

The same tendency to substitute female help for male help, which is complained of there, prevails with us, but we believe without the disastrous consequences that seem imminent on the other side. While the market may be overstocked with applicants for situations, the man or woman employé possessed of the right kind of information need not despair as to the future. If his or her education is of the right kind the opportunity may be found in which to apply it in almost any of the larger cities or towns. It is true there are many who find it almost impossible to obtain permanent positions. Does it ever occur to these unfortunates that the fault is not all on one side? There are operators and operators, reception-room assistants and reception-room assistants, but among them all there are those who tower pre-eminently above their fellows.

If by chance they desire a change of employment, opportunities flock to them. It is thus in every business or profession, and the man or woman possessed of the greatest amount of practical information in his or her sphere, and also capable of applying it with the least friction may be sure of success. Absence of friction in this case means adaptability to conditions and circumstances. In the case of a reception-room assistant, for instance; she who possesses the knowledge of human nature in addition to the technique of her profession is seldom out of employment.

The situation seems to the writer to sum itself up in the short phrase, "personal equation," and if this is so, it should hold forth a gleam of hope and encouragement, even to the most unfortunate plodder.—[ED. W. P. M.]

Those of our readers who make it a rule to look through the "Answers to Correspondents" column week by week must frequently have been struck with some of the inquiries we have to reply to. A very frequent one of late has been as to our opinion of the merits of somebody's work as an operator or as a retoucher, and what salary he should command as an employé in either capacity. Sometimes the examples of work sent, possibly picked specimens, have been tolerably good, at others just the reverse, and they serve to illustrate that the sender has no idea whatever of what is required of a good craftsman, either as an operator or a retoucher, or the two combined. Many of the former's specimens, though they may be good, clean photographs, show that their producer has but little knowledge of lighting the sitter, and far less of posing him or her; indeed, some of the poses have often been of a most inartistic character. The same may be said with regard to some of the examples of retouching we have received, as they show that the senders have no idea of drawing or the anatomy of the face. The notion seems to be, in the majority of cases, to work out every line of the face and make it appear as smooth and even as the wax figures one sees in hairdressers' shop-windows. In some cases the likeness has been almost entirely destroyed through the total obliteration of the most striking features of the model, the face being rendered flat and inanimate to a degree.

It is evident from a very large number of the specimens we have received that the senders have quite mistaken their vocations, as they clearly imagine their work to be good, or, at least, sufficiently so to obtain them employment—and so it may, of a kind. It is this sort of thing that has brought about the overstocking of the labor market with mediocre workers, who are frequently glad to obtain employment at a wage even below that of an ordinary unskilled day laborer. At the present time, when plates are bought ready for exposure in the camera, there is really very little for

an operator to learn before he can produce a good and clean negative.

The chief skill now required is in the lighting and posing of the sitters and being able to deal with them with tact and in a gentlemanly manner, so as to secure portraits of a refined and artistic character. These qualifications do not seem to be recognized by a large proportion of the candidates for appointments as operators. Many seem to surmise that if they can produce a clean negative, that is all that is necessary to secure them employment. It is perfectly true that the highest class operators—even in the best studios—do not get the same high salaries that used to be paid in the wet collodion days. But four or five guineas and upward a week are still paid; but then it is only to gentlemen of good education and with exceptional artistic ability. It is obvious that these qualifications are quite overlooked by some who think they are really good operators. An operator who may suit quite well for a studio of the "three for half-a-crown" type would be quite out of place in a high-class one where the sitters are mostly of the aristocracy.

In the above we have only been considering the male portion of photographic labor. But at the present time much of the work that used to be done by males is now done by females, and that does not improve the position of the former. A very large proportion—indeed, by far the larger proportion—of the printing and toning, as well as retouching, is now done by females, and it may be at once admitted that this work can as well be done by them as by males. But with them the outlook for the future is by no means bright. It has, for some years past, been a custom with very many to take girls as apprentices, with or without premiums, for three years, to learn printing, mounting, spotting, reception-room duties, etc., paying them quite a nominal wage or none at all. After three or four months the apprentice, if fairly intelligent, becomes, with ready sensitized papers, able to do the work as well as those with long experience, and also to retouch negatives fairly well, if they have good tuition. She then becomes a valuable hand for the end of the term, and receives quite a nominal sum for her services. Before she is out of her time—perhaps six months—another apprentice is taken on to learn the business, and she, in due course, takes the place of the former one, who then has to seek a situation elsewhere, and finds that it is by no means so easy a matter in the already overstocked market as she or her friends were at first led to imagine, as witness the number of advertisements in "Situations Wanted" that appear weekly in our columns.

The advertisements "Situations Wanted" and "Situations Vacant" are always a good criterion of the existing state of the labor market. There is very little question that the present state of competition, with cutting prices, has been brought about by gelatine photography. It has tempted so many to become amateur photographers. As such they are able to purchase their plates and papers at about the same price as the professional, and they think, from the prices the latter—particularly those of the higher class—charge for their work, that photography must be a highly remunerative business, quite without taking into consideration anything beyond the mere cost of material. Hence, they drift into professionals with very little ability as such, and, consequently, frequently adopt cutting prices. Some parents, thinking of the supposed profits in photography, article their sons for a term to some who almost make a trade of taking "articled pupils" with a very substantial premium; but what are the youth's prospects when he has served his term?

The object of this article is to point out to young people and their parents that at the present time photography as an employment is by no means so lucrative as many seem to imagine, and there seems to be but little prospect of its being better in the future. We, therefore, suggest that they should not enter the ranks of professional photography without giving due consideration to the matter.

A rare opportunity will be afforded photographers visiting the World's Fair during the week of the National Convention, October 3d to 8th, to study good portrait painting under the leadership of an accomplished artist. Read the letter from President Reeves on another page.

ITEMS OF INTEREST.

Library of Congress in Miniature. A model of one of the most beautiful and famous buildings in the world is shown at the World's Fair, St. Louis. Visitors at the World's Fair at St. Louis will see in the Government Building a large model of the Congressional Library at Washington. Standing near the Capitol, it is almost as imposing as that vast structure itself, and as a show feature the Library Building attracts almost as much attention as does the splendid Capitol itself.

There is shown a book stack, the machinery by which books are handled, and the way in which they are carried through tunnels to and from the United States Capitol. The artistic interior will be reproduced in colors. The ornate reading-room, the splendidly frescoed corridors, the Senate reading-room, the House reading-room, and several of the other more notable rooms will be made so as to show the effect of the frescoes, columns, stained glass, and other accessories which combine to make this one of the most magnificent buildings in the world. There will be a large collection of photographs, rare volumes, etc., exhibited in addition to this.

Mr. John Carbutt presented a very interesting and instructive paper before the Section of Photography and Microscopy of the Franklin Institute of Philadelphia, at a recent meeting, in which he treated of the development of the color-sensitive plate for reproducing the values of the spectrum colors, describing at length his own investigations and experiments in the production of the polychromatic plate and the necessary light filters for use with it. In his introduction Mr. Carbutt referred to the subject of orthochromatic photography as one of the most wonderful achievements in the art of photography during its entire existence, and in a brief review of the early experiments said :

"In 1861 James Clerk-Maxwell first experimented with three-color photography, and the color curves plotted by him are the base on which the results of to-day are obtained. But at that date there was no color-sensitive plates to be had, and the subject lay in abeyance until the late Dr. Herman Vogel, of Berlin, in 1873, found by the addition of certain dyes to collodion (principally of the eosine group) a better rendering of the greens and yellows was obtained. Captain Waterhouse also experimented on the same lines. In 1878–79 Mr. F. E. Ives produced very red sensitive collodion plates by the use of chlorophyll as a sensitizer. The late Mr. Carey Lea also made extensive experiments with salts of chlorine to produce color values, but, owing to the slowness of collodion and the long exposure required to reproduce the red, the securing of color values by photography was only made possible on the advent of the more sensitive gelatine dry plates. In 1883 Tailfer and Clayton, of Paris, brought out a dry gelatine plate color-sensitized with eosine, and the same was introduced commercially in London in 1884 by Mr. J. B. Edwards. Learning of this through the British photographic journals, I took up the study of the subject, and in 1885 commenced the manufacture of orthochromatic plates. These plates, with the aid of a yellow screen for landscapes, flowers, etc., and an orange screen for copying paintings, produced satisfactory color values, including blue, green, yellow, and orange, but lack of power to reproduce red, unless a very dark red filter is used, entailing a very protracted exposure."

Mr. Carbutt's investigations into the subject of sensitizing of the spectrum colors have been indefatigable, and he feels that his reward is close at hand in the production of his polychromatic plate, for which is claimed a sensitiveness up to and including the "F" line.

Members of the Photographers' Association of America are again reminded of the necessity of being in good standing in the Association if they wish the advantages offered by the Forest Park Hotel during the convention week, October 3d to 8th. The best way to establish this good standing and to avoid delay and disappointment after reaching St. Louis is to send check for dues to Treasurer Frank R. Barrows, 1873 Dorchester Ave., Boston, Mass., at once.

By the Allan-Barker Studio, Newark, N. J.

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THE HANDLING OF TEXTURES.

BY DAVID BLOUNT.

THE true conception of a work can only be personal or individual—therefore its individuality ought to become at once apparent. An artist treats his subject after his own manner or method, and, according to his power, will give such distinction—or otherwise—from other men's work; in the same way we expect the photographer with art pretensions to render his pictures in his own distinctive way, or perhaps peculiar way. One can almost identify some men's work, without having been told or having seen the signature of such; there is personal distinction about it, or, if you like, a mannerism of their own. Some express themselves pictorially by their characteristic composition, tone, or line, while others succeed better in texture, peculiarities of the process they can manage best, or, again, aim at securing—whatever may be the subject—a masterful "handling" of such.

In this reference to "handling" as a means of personal expression (to me, above all others) I allude to the perfect rendering of surfaces. Now, unless one works by some process where freedom of action is as easy and unlimited as the painter's methods, this individuality of expression must be practically non-existent. I am quite prepared for the argument that the negative, or transparency, can be so manipulated as to give the worker this freedom, but my contention is that it is the print that must be "handled" if one is to succeed in the subtleties of the correct rendering of textures.

I will just go into this pictorial representation of texture, perhaps rather analytically; but I will ask the reader to have some patience with this important subject, too often neglected altogether by the photographer.

A striking or successful portrait requires the combination of many good qualities to make it telling, and it is impossible to extract from it one of these essentials without ruining it. Now, besides all the reader has read and digested on tone, design, composition, and the like (or the lot, as you will, as they are all very nearly related to each other), it must be remembered that one of the most requisite and necessary qualities of a portrait is the correct rendering of the complexion, as regards color, texture, and any individual peculiarity of the skin that the sitter may possess. I might be reminded that if the picture is in tone the complexion will be all right, and can take care of itself, but with this I cannot concur. I can admit that the picture might be in tone, but the rendering—I will say texture—might be very unlike the complexion of the model. I do not want the reader to misunderstand me when I speak of texture. This to me does not mean only paper surface. If I surmise, for the sake of argument, that texture means the surface paper, then it must necessarily follow that the texture of all the picture or image—I mean the face, hands, dress, background, and the rest included in the work, on a given piece of paper, rough or smooth, according to the individual fancy or taste of the photographer—must be of the same texture, always provided no handwork has been added to the negative or print. To any who have given any thought to this subject, especially in reference to portraiture, this must at once appear as very erroneous.

The texture of the complexion (and it seems to me that the same principle applies to all instances of texture) it is scarcely necessary to point out to the veriest novice differs greatly from that of the clothes and other surrounding objects. Perhaps I can make my meaning clearer by saying, actual paper surface has very little to do with the rendering of the pictorial texture I speak of. Now, of course, I am aware that the texture rendering of, say, for instance, a dark, rough Scotch tweed coat, and the complexion of a girl possessing a clear, smooth skin, must have due thought given to the choice of a paper, as to whether it should be rough or smooth; but I maintain that even on a rough-surface paper, by clever "handling," the apparent "illusion" of smoothness of the complexion,

or the roughness or texture of the dress or other portions may be represented. That is "handling" texture.

I cannot conceive or imagine a portrait, or, indeed, any picture or work with art pretensions, to be a successful achievement unless it possesses this "handling" —and I use this word because I know of no better or so expressive. To ascertain the truth of this use of complexion texture it is only necessary to examine any of the works of the great portrait painters critically, and it will at once be apparent. Two notable instances of magnificent texture were exhibited at the Royal Academy of last year in the works of J. J. Shannon, R.A. (portrait of Miss Dulcie Lawrence Smith), and the picture of Miss Olive Hood, by G. H. Boughton, R.A. The former of these, in regard to the "handling" and rendering of the hair, lace, dress, and background, is simply exquisite, and although "handled" broadly in a way, would be an object lesson to some of the faultlessly photographic.

The second work I have mentioned is a wonderful one; the contrast between the dark hat and its strings of tulle or chiffon, and the light-colored fur muff and boa is the rendering of a master, while the face is beautifully treated, and even the eyes have their correct texture.

I may be warned that this reference to "handling" is delightfully vague, and perhaps, to be a little more explicit, I might say, with apologies to those who understand and interest to those who do not, that I wish the latter less advanced pictorial workers to notice my reference to this, to what, at least, I think, is a correct explanation. "Handling," in regard to the complexion, is the treatment of the pictorially shown skin or color, or the worker's impression of the model, in such a way as to graphically represent this and differentiate it from its surroundings, and make it by this difference, as it should be, of almost first importance. Or, again, by the judicious helping of the muscles, worked in the shape and direction of these, or the strengthening of the essential and, if any, striking features, giving the complexion that touch of naturalness called for in any good portrait.

Observation as to whether a face is dark or fair, transparent or opaque in color, is most essential. The peculiar character of the hair, as to whether it is "stringy," hard, and full of lines, or soft, and falls in masses, or the general appearance of the actual surface, as to whether it is dry, oily, dull, or takes on large or small high lights, can be perfectly rendered by "handling" the print.

I know that the painter, by a sort of "scrumbling" over the hair, can give it a most marvellously true representation of such, and to me it is of no matter whether he gets his effect by "scrumbling," or whatever other way, so long as he gets it. I am quite sure the ordinary pure photograph cannot render this as correctly. It might give the "detail" appearance, but not the texture. Then, again, the dress is an important part of a figure study or portrait, and furs, muslins, satins, silks, tweeds, and other materials all have their distinct and own surfaces, which will demand consideration.

Now to revert again to the work of the painter in oils; observe how he portrays a face. It does not possess the feeling of blackness all over it, with an isolated Chinese white high light picked out on the forehead, nose, or chin, like a bright oasis in a desert of blackness. I refer in this latter to the excessive emphasis of light that some pictorial workers give to their works. The face appears to have been oiled, and has a bronze-like appearance, then the high lights seem to have been accentuated to such an extent that in drawing they are really about a foot in front of the face pictorially represented. It seems to me that if a portrait impresses one as a bronze, it is badly rendered in regard to the complexion. The idea is, I suppose, for roundness, and at the same time muscular emphasis, but to me it is not rotundity, but squareness, besides being a misconception and abuse of texture, as well as a lack of knowledge of the anatomy of the face and head.

Now, to come to the absolutely photographic: in registering or recording complexion, tone, or texture, it is at once a certainty that the ordinary plate does not give this correctly. The impracticability of the use of color screens, orthochromatic plates and the like for portraiture (owing

to the long exposure required) is in a great measure responsible for the picture not being rendered as in nature, or with a poor representation of the complexion as regards color. In ordinary open lighting, which, I presume, in ninety-nine cases out of a hundred, is the most successful of portraiture, a face possesses full luminous shadows—not opacity and blackness; but it often seems to me that this latter is usually the way it is given by photography. Too much retouching or extremely dense hard negatives will soon lose the value of complexion, and a negative well exposed and rather thin seems to give a better representation of the human face than the former.

It is hardly necessary to remind the reader that the tone and texture are altogether different, although they are co-relative. However, I have made this small reference to the photographic rendering of tone, as the two are almost inseparable.

I would just like to mention before concluding that I fully recognize the immense value of paper surface, and how it slightly helps texture, although must not be confused as the same in itself. I believe it is possible to transfer a carbon print on to almost any surface; platinotype is, I believe, a little more limited as regards paper, while gum-bichromate can be worked almost on any surface, provided the gum-mist "knows how." Comparing these three most beautiful processes, carbon, in regard to complexion, has a look of leather about it, and platinotype has an opacity or buried-up appearance, and neither of these seems capable, in my opinion, of proper "handling," which undoubtedly the gum-bichromate process possesses to a degree only to be equalled by water or oil-color painting.

By what process, or how, the worker will produce, might I call it this "illusion" of texture, whether by the choice of a printing process, to allow personal intervention and "handling," or of sufficient elasticity to suit the required rendering of texture—or other means—is a ques. tion for each to ponder over for himself. —*Amateur Photographer.*

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

XI. ADVERTISING VS. PUBLICITY. A RECAPITULATION.

ATTENTION was called in a previous paper of this series to the wrong interpretation almost invariably attaching to the word "advertising" when used in connection with the business of a photographic studio. I am convinced from letters and comments frequently coming under my notice that comparatively few photographers, even now, fully comprehend what the word really means.

There seems to be a feeling among many that it only refers to display announcements in newspapers, and on this wrong assumption they condemn all advertising. I have even seen a letter from a professional photographer in which is contained the statement that the writer believes all advertising by the photographer to be unprofessional, undignified and unnecessary. He announces his intention to move a resolution before his next State Convention for its abolishment. Does it occur to this man that there are different kinds of advertising, and that he himself is probably using at least three direct methods of advertising even while he cries it down? I know that he uses printed stationery, with a very nicely engraved design in the corner; this is only one way of advertising. I assume that his name is engraved on every mount that goes out of his studio; this is another, and I will venture to predict that he has a well-arranged display of his work at or near the entrance of his studio. This is another way. Still he is opposed to advertising. He further says that doctors, lawyers, painters and sculptors don't advertise, why should photographers have to?

Let us take up the question in detail and see where the parallel applies and where it

fails. Do doctors and lawyers advertise? Not in the newspapers with display type. No, to be sure not; but how about their signs, their stationery, the appearance of their names in directories, blue books, society registers, etc., and, above all, how about reading notices and local news items into which their names are woven with surprising frequency in most communities? But, even supposing that they really do not employ publicity methods in the conduct of their business, is there any parallel that can properly be drawn between them and the photographic studio? Both the doctor and the lawyer are purely professional men, not dealing in any product or commodity, but serving the necessities of the public out of their store of acquired knowledge, while the photographer is selling a product which is not only not a necessity but a luxury. The public *must* be defended when suit is brought against it, and the patient *must* have medical aid when ill, but both may live, thrive, prosper and die without photographs. That's just what we don't want them to do, and just why we ought to reach them with a convincing argument of some kind.

In the case of the painter and the sculptor, it is true that each produces a tangible piece of work, the result of his intellect and training, the joint work of brain and hands. But even here the parallel fails, for without publicity of some kind his work, no matter how great, remains unnoticed. With publicity he thrives, and with prosperity the publicity that attaches to his name and work increases. The product of the studio is not the direct result of brain and hands. Mechanical apparatus and methods come between, and it is even said that not all photographs are works of artistic merit. Do they not then require all the help they may have to stimulate a demand for them and appreciation of their merits when they deserve it?

It comes down to a simple question of words, after all, and if the photographer has convinced himself that he can get along without *advertising*, well and good. Let him try the other word, and guess again. Can he get along without *publicity?* No. He may as well try to do without water in his dark-room. It can't be done. Time was when it was thought that photographs could not be made without the sun, but Mr. Peter Cooper Hewitt, Mr. Pingree and others have exploded that theory. There are, however, two things that the studio cannot succeed without. Water for the dark-room and publicity for its output.

If it is unprofessional and undignified to do it in one way, as I am perfectly willing to admit it may be, let us find and adopt some other way. There are many and various methods that are not open to the objections urged by some against newspaper display advertisements.

The main point to be considered is that *something must be done.* It is just as unprofessional, and much more undignified, to fail in business than it is to seek out some honorable way in which to succeed.

There seems never to have been objection to the studio imprint on the photographic mount, nor should there be; but this is advertising, nevertheless. No one criticises the good taste of the photographer in displaying specimens of his work at his entrance to tempt the passer-by. This, too, is advertising, and everybody employs these methods. Many also issue engraved or printed invitations to studio receptions or openings from time to time without a suspicion that they are overstepping the bounds of business etiquette or propriety. Why should they hesitate when it comes to other kinds of announcements?

Every studio register in the land records the names of more or less people who have in the past demonstrated their interest in the studio by at least one order. What has happened after this order was filled? In a large majority of cases absolutely nothing. Other names have followed it upon the register, and it has passed into oblivion. Apparently its mission has been accomplished, and no more is done with it, excepting that it may perhaps fall under the eye of the proprietor and cause him a moment of mild wonderment as to when the call may be repeated. The register ought to be studied as carefully and as systematically as the cash-book. It is the logical beginning place of a bank account. It is a detailed and classified directory of the most exclusive kind. Every name in it represents not only a living being, such

as may be found in any other directory, but, rather, one who is definitely known to be interested in photographs. Further than this, it shows that, for some reason or other, the party has made a choice of the possible studios and has selected this one particular place as the one to do his or her work. Does not all this effort and expression of interest and good-will on the part of a customer warrant the photographer in following up the order with occasional courteous reminders of his desire to render further service? Decidedly yes, and I even go so far as to say that the man who does not do something of this kind cannot justly complain if his neighbor across the street gets the next order.

Most people like courteous attention, and some are inclined to resent indifference or fancied neglect, and the photographer who has never made a point of following up former orders has missed a great many opportunities for profit. All such work as this comes directly under the heading of studio advertising, though it is not advertising in the sense of the word as it seems to be understood. Shall we rather call it "publicity?" It matters not; "a rose by any other name would smell as sweet;" but let us call it something, and give it a place in the business of every progressive studio.

Let us remember that the names and addresses upon our studio registers represent the labor of years and the expenditure of capital, and unless they are in constant and systematic use as a means of bringing new work into the studio we are neglecting a vital interest in our business. Get rid, as soon as possible, of any idea that advertising, or publicity, or whatever it may be called, is unprofessional or undignified, if carried out properly. It fortunately happens that the very ways that are most dignified and unobjectionable are the ones that best fit our profession and produce the best results.

That the value of the right kind of publicity is coming to be known and felt to a far greater degree than ever before is not to be denied, but there are many still who half believe, but are not yet convinced. Let such a photographer try for a moment to imagine himself in the place of a customer whose long absence from the studio has been noted. Suppose (under this imaginary change of personality) that the morning mail brings to the wife of the photographer a short, well-worded, and neatly executed letter, apparently written and addressed upon a typewriter, in which attention is called to the fact that her absence has been noted and the hope expressed that an early call may result. Some incidental reference is made to a new style, an effective background, a choice collection of prints in platinum and what not. This letter is couched in plain, direct language, unmistakable in its purpose, but devoid of anything to which the most fastidious may reasonably take exception. It is more than probable that the letter will be commented upon, if nothing more, and if for no other reason than that it is so personal in its nature.

If, after a few weeks, another note arrives, embodying a short, direct statement to its reader, the effect will become more apparent, and, in many cases, a call will follow. If the photographer's imagination is well trained he will see the effect that may be produced upon his own patrons by some similar method of publicity, and will adopt it forthwith.

TRANSLATIONS AND ABSTRACTS FROM THE GERMAN.

BY HENRY T. WEED.

DR. E. KOENIG gives in the *Photo. Mitt.* an elaborate article on the preparation and use of the filters and plates needed in three-color photography. Beginning with the light filters, he divides these into two classes: additive filters which are used in optical synthesis, as in the chromoscope, which allow only one color to pass and absorb the others; subtractive filters, used in three-color prints, which absorb only one color and allow all others to pass somewhat diminished in brilliancy. Opti-

cally, therefore, we have to carefully distinguish between these two classes.

After speaking of the difficulty of using liquid filters and of the impossibility of preparing suitable collodion filters, both owing to the limited number of alcohol soluble dyes and the difficulty of making two filters alike, he gives the following directions for preparing gelatine filters:

As a support for the light filter proper, plate glass free from flaws, well polished, and 1 or 2 mm. thick, should be used. These glass plates must be cleaned first with dilute hydrochloric acid and then with alcohol and ammonia. The scrupulously clean plates are to be laid upon a large carefully levelled plate-glass slab, and for every 100 sq. cm. of surface, 7 c.c. of colored gelatine poured on. That is, a plate 5 x 10 cm. would require 3.5 c.c. As the basis for the colored gelatines an 8 per cent. gelatine solution should be used. To this the required amount of dye is added, the solution filtered, and the amount needed poured on the glass plate, on which it is to be evenly distributed with the aid of a glass rod. The plate is then allowed to dry in a place free from dust. Chemically pure dyes must be used, best those especially prepared for three-color work.

To prepare the subtractive filters:

For the blue filter: 4 grams of crystal violet are dissolved in 100 c.c. of warm water, with the addition of 5 drops of acetic acid. To 100 c.c. of the gelatine solution 6 c.c. of the dye are to be added.

For the green filter: 3 grams of tartrazin and 6 grams of patent blue are dissolved in 330 c.c. of warm water. To 100 c.c. of the gelatine solution 4 to 5 c.c. of the dye should be added. This filter allows the green light to pass, partly absorbs the yellow and blue, and absorbs the orange and red up to a small band at the extreme red end of the spectrum. This red is of no technical importance, as it is not injurious to the picture. In case however a filter absorbing all of the red is desired, the following is used: 4 grams naphthol green, 6 grams patent blue, 2.5 grams tartrazin are dissolved in 400 c.c. warm water. 5 c.c. of the dye are added to 100 c.c. gelatine. This filter requires a longer exposure to be given to the plate.

For the red filter: 5 grams dianil red are dissolved in 200 c.c. water; 4 c.c. of the dye are added to 100 c.c. of gelatine.

To prepare the additive filters:

For the blue filter: 3 grams crystal violet, 1 gram methylene blue (free from zinc chloride) are dissolved in 100 c.c. of warm water, with the addition of 5 drops of acetic acid. To 100 c.c. of gelatine 7 to 8 c.c. are added.

For the green filter: 6 grams tartrazin, 1 gram patent blue dissolved in 140 c.c. of water; 7 to 8 c.c. are added to 100 c.c. of gelatine. Here also if the harmless red is to be excluded, the following is used: 2 grams naphthol green, 6 grams tartrazin, 1 gram patent blue dissolved in 180 c.c. of warm water, 8 to 9 c.c. of this are added to 100 c.c. of gelatine.

For the red filter: 4 grams tartrazin, 3.5 grams rose bengale dissolved in 150 c.c. water; 7 to 8 c.c. are added to 100 c.c. of gelatine.

Each filter is made up of two colored plates, as this gives a more uniform result than when enough of the dye is poured on one plate to produce the requisite depth of color. The two color plates should be cemented together, using Canada balsam. This is done by gently warming the plates and pouring on the centre of one a drop of the balsam, the second plate is then lowered on the first, the two films being together. Air bubbles must be avoided. Should they form, they may be forced to the edge by pressure with the fingers. The filter is then placed on a levelled slab, under a heavy weight, and allowed to stand for some days in a warm place to allow the balsam to harden. After this, the balsam that has exuded may be cleaned off with benzol. These filters are especially fitted for plates sensitized with orthochrom or pinachrom.

Until recently it was necessary to use three plates, sensitized—one for the green and yellow, one for the red and orange, and one for the blue. This carried with it the disadvantage that the three plates had different characteristics, and so the production of uniform negatives was a difficult matter. To-day we have dyes that sensitize a plate for almost the entire length of the spectrum. Of these dyes the most important are the ethyl red used by Prof.

Miethe, orthochrome T, and pinachrome. Of these ethyl red gives a plate sensitive to green, yellow, and orange; but its sensitiveness for the red itself leaves much to be desired. Orthochrome carries the sensitiveness into the red, while pinachrome sensitizes up to the extreme red, and also allows the time of exposure behind the red filter to be much shortened.

The use of commercial panchromatic plates is of course the easiest method. Unfortunately, however, these are not so sensitive as the plates prepared by bathing, and moreover this decreased sensitiveness is most marked in the red region. To decrease the time of exposure as much as possible it is therefore necessary to sensitize the plates by bathing. Not all brands are suitable for making bathed plates, as many give foggy results. Dr. Koenig obtained the best results with Seed plates, although many other makes also gave good results.

To prepare pinachrome or orthochrome plates the following procedure is recommended.

A stock solution is prepared by dissolving 1 gram pinachrome or orthochrome in 100 c.c. warm alcohol, adding 500 c.c. alcohol and 400 c.c. distilled water. The solution should be kept in a brown bottle and away from light. Under these conditions it keeps perfectly. To sensitize, plates that yield an image perfectly free from fog and of medium sensitiveness are immersed in the dark-room in the following bath for three to four minutes: 200 c.c. distilled water, 2 c.c. ammonia, 4 c.c. pinachrome stock solution.

With some emulsions it is better to omit the ammonia. This bath will sensitize only two 5 by 7 plates, the sensitiveness of a third plate will be diminished, while a fourth will be useless for color work.

The plates are then washed for two or three minutes in running water and dried in absolute darkness as rapidly as possible.

The plates keep for some months, and are very fast. Owing to their sensitiveness to red light great care must be used in handling them in the dark-room. Their apparent cost seems to be their only disadvantage, pinachrom now selling for $5.75 a gram; but this amount will sensitize about 500 plates, so that its real cost per plate is small.

Using orthochrome bathed plates, the relative time of exposure behind the subtractive filters is, blue : green : red, 1 : 3 : 6; for the additive filters, 1 : 5 : 8. With pinachrome for the subtractive filters, 1 : 2 1/2, and for the additive filters 1 : 4 : 3.

As has been stated before, pinachrome gives better results in the dark red than orthrochrome, which is of more importance than a slightly decreased exposure. As to the absolute time of exposure, it is difficult to say much, since this is dependent on so many factors. In general, the exposure under the blue filter is increased fourfold as compared with the time without a filter. For the three negatives, using orthochrome plates and subtractive filters, the time would be $4 \times (1 + 3 + 6) = 40$, with additive filters $4 \times (1 + 5 + 8) = 56$ times the exposure needed without filters. Using pinachrome we have the figures 24 and 32 instead of 40 and 56. Since, with modern lenses the time of exposure is often only a fraction of a second, the time of exposure needed in three-color work is not out of reason.

With commercial plates the case is different. One of the best makes required the relative times of exposure to be 1 : 8 : 40. The three negatives if made on this plate would then require $4 \times (1 + 8 + 40) = 196$ times the usual exposure.

PROF. H. KESSLER reviews in the *Photo. Korresp.*, 1904, page 217, the various methods for increasing the time during which sensitized carbon tissue remains good. He recommends highly the work of Prof. Namias, who found that its keeping qualities were increased not only by the addition of ammonia, as has been known for a long time, but also by the addition of acetates, oxalates, citrates, tartrates, and lactates to the sensitizing bath. Benett, *Photog.*, October, 1903, page 321, gives the following sensitizing bath, based on this principle:

Potassium Bichromate . .	20 grams.
Citric Acid	5-10 grams.
Distilled Water . . .	1000 c.c.
Ammonia in slight excess.	

In the test of the above formula carried on at the k. k. Graphischen Lehr und Versuchsanstalt, 30 c.c. of concentrated ammonia were added, which changed the

reddish color of the bichromate to a bright yellow. Carbon tissue sensitized as above gave excellent results, and its practical use is advised. Tissue that has been sensitized for four weeks gave perfect prints, the backing paper stripping readily and the tissue developing easily. Also prints that were exposed and then allowed to stand for two weeks developed well at the end of that time, the continuing action of the light not seeming to make the gelatine insoluble as usual.

A solution of albumen that keeps well is obtained by dissolving 140 grams of dry albumen in 980 c.c. of water, and then adding 2 grams of solid carbolic acid. It is necessary to allow the albumen to stand for two or three hours before solution takes place, and any lumps that form should be broken up. It is then to be filtered through absorbent cotton. It is best preserved in a loosely corked bottle, and may be kept for months.

Lumière and Seyewetz have made a careful study of sodium sulphite. A summary of their work follows:

As regards anhydrous sodium sulphite:

1. Anhydrous sodium sulphite, even when exposed to the air in thin layers, undergoes no considerable change, except when the air is very moist.

2. Weak solutions of the sulphite oxidize readily in the air at ordinary temperatures. In solutions of various strengths the oxidation is the less the stronger the solution.

3. Solutions containing 20 per cent. or more oxidize very slowly, even if they are kept in open bottles and offer a large surface to the action of the air. It is, therefore, advisable to make strong solutions if they are to be kept for any length of time.

4. At the boiling temperature the solutions of anhyrous sulphite oxidize the more rapidly the more dilute they are. A solution containing 20 per cent. or more can be exposed to the air while boiling without undergoing much change.

As regards crystallized sodium sulphite:

1. Crystallized sulphite alters rapidly when exposed to the air. This change is the more rapid the higher the temperature and the lower the percentage of moisture in the air.

2. This change is not an oxidation, but a simple dehydration, and it is possible by allowing the crystallized salt to stand for a long time in dry air, at ordinary temperatures, to completely deprive it of its water of crystallization without the formation of a noteworthy percentage of sulphate. This is opposed to previous work.

3. Aqueous solutions of the crystallized salt behave in the same manner as solutions of the anhydrous. In dilute solutions they absorb easily the oxygen of the air, while in concentrated solutions the oxidation is very slow.

4. Dilute solutions of the sulphite that have been crystallized from an acid solution are much less stable in the air than those of the same concentration made from sulphite that has been crystallized from neutral or alkaline solutions.

Prof. A. Lanier gives a rapid hydrochinon and potassium ferrocyanide developer in the *German Photographen-Kalender*, 1904.

SOLUTION 1.

Water	900 c.c.
Sodium Sulphite	40 grams.
Potassium Ferrocyanide	120 grams.
Hydrochinon	10 grams.

SOLUTION 2.

Water	100 c.c.
Potassium Hydroxide	50 grams.

For use, add 10 c.c. of Solution 2 to 100 c.c. of Solution 1.

The possibility of direct color portraits in the studio is indicated by a three-color half-tone in the May number of the *Photo. Korresp.* A lady in Japanese costume is the subject, and both the flesh tints and the brilliant coloring of the costume itself are well reproduced. The negatives were made in the studio on a dull January day, on pinachrome bath plates, with a Zeiss-Unar, *f*/7, the times of exposure being red 2 seconds, green 3 seconds, blue 1 second.

The Convention Exhibit. It is to be hoped that the exhibit of professional photography at the convention in October will be of an exceptionally high order. The absence of any adequate representation of American photography at the World's Fair, just across the way, ought to stimulate the profession to be well represented at its convention.

AN OUTLINE OF TRICOLOR PHOTOGRAPHY.*

BY A. C. JOLLY.

THERE can be very little doubt that in the near future the tricolor process of photography will become available, both for the amateur with limited means and the busy professional man with limited time; and modifications in filters and plates are tending to make its application to portraiture eventually possible.

Now, although the process is not a new one, the workers in it up to the present have by no means agreed among themselves as to the best method of procedure; and many serious conflicting and contradictory statements have from time to time been published. It will therefore perhaps be best to begin at the most fundamental facts and build up our outline step by step. In the first place, let us clearly see to what the hue of a colored object is due.

White light, the science of optics tells us, is the combination of a great number of waves in the ether, of different lengths, and, if by any suitable means, we can break up the white beam into its components, we shall find that the longest waves which affect the eye give rise to the sensation of red, while the shortest give rise to the sensation of blue and violet. Now, suppose we are examining a red flower, or any red colored object—to what is its color due? Since it is illuminated by white light, and it only produces the sensation of red in the eye, it must receive all the different wave lengths of which the white beam is composed, and absorb all but the red, which it reflects or transmits to the eye. This reasoning applies for all other colors.

We may therefore say that color in optics is analogous to pitch in sound, since the pitch of a note depends also on the wave length; for short waves the pitch is high, and low notes are produced by the longest waves. Various theories have been forwarded to account for the perception of color in the eye itself, and probably the one most nearly meeting the requirements of the case is that originally proposed by Thomas Young, and accepted later with certain modifications by Von Helmholtz. The Young-Helmholtz theory supposes that there are in the retina of the eye three kinds of nerve elements, each set most affected by one of the three fundamental color sensations, but also excitable in a less degree by each of the other two.

Now Clerk-Maxwell showed that the hue of any color could be matched by the suitable admixture of not more than three simple colors, viz.; red, green, and violet, and, moreover, he constructed and used a piece of apparatus, known as "Maxwell's Color Box," for demonstrating this fact.

These three colors, red, green, and violet, are known as primary colors, and each is supposed to stimulate most of its own particular set of nerve elements in the retina, and hence it is known as a simple color. All colors except red are formed by the partial stimulus of two, and sometimes all three of the nerve elements at once. Thus the sensation of yellow is produced by a stimulation of the red and green elements, and so on.

Maxwell found for each portion of the spectrum the amount of each of these three primary colors that was required to reproduce the color of the part under investigation, and plotting these values on a base line representing the wave-lengths of the spectrum, Maxwell's color mixture curves were obtained, which are of great importance in tricolor work, since they represent the amount of each of the three monochromatic lights required to match the color, and not the relative amounts of the sensations required to reproduce the visual effect.

It will therefore be seen from the foregoing that all colors may be represented actually and visually in term of three monochromatic primaries, combined in a suitable manner, and observed with the eye.

But when we proceed to photographically record these effects we have fresh difficulties to face.

* This extremely simple exposition of three-color photography is reprinted from the *Photographic Dealers' Annual*, and is, perhaps, one of the most concise and clearly written expositions of the subject to be found to-day.—[ED. W. P. M.]

The photographic eye is the camera, whose retina is the photographic plate, and, unfortunately, this retina has not its selective sets of recording elements, and so we have to produce this selection artificially. An ordinary photographic plate, if exposed to the spectrum, will be found to record practically no red and only a very slight extent the green, although the blue and violet are fully recorded, even further than the eye can perceive. Such a plate, therefore, is unsuitable to form our photographic retina in its normal condition. It is to Vogel we are indebted for the introduction of color sensitive plates, and we are now able, by adding suitable dyes to the emulsion, or by bathing the plates in solutions of them, to produce color-sensitiveness to almost the whole of the visible region, the extreme red being the most difficult to record. This process of orthochromatizing or color sensitizing plates has received, during the past few years, a great deal of attention at the hands of various plate-makers. Thus most of them produce orthochromatic plates, but as is shown in the recent paper before the Royal Photographic Society on this subject, by Messrs. Newton and Bull, many of the so-called orthochromatic plates would only give indifferent results if applied to the tricolor process.

In fact, the above quoted paper shows that it is more satisfactory to manufacture one's own orthochromatic plates by bathing ordinary dry plates in suitable dyes, a procedure which the author has found to work very well.

Under these circumstances, it is possible by the use of a dye, such as ethyl red or orthochrome T, to render a plate more or less uniformly sensitive over a very wide region of wave-lengths, and thus render it possible to make all exposures on one type of plate, a process which contributes greatly to uniform results.

One important point in the selection of a suitable plate or dye is, that the region over which the plate is made to work should be uniformly sensitive; many plates at present on the market show considerable decrease of sensitiveness to a portion of the region of wave-lengths over which they are supposed to work. This effect is generally most marked in the blue-green. At the present time considerable attention is being directed to the sensitizing of plates by bathing in dyes, and many important improvements have been recently effected on the Continent.

Having thus obtained a sensitive retina for our photographic eye, our next business is to make it selective. It is here that we have to face our principal difficulties. Unfortunately, the sensitive emulsion with which our plate is coated gives the same final result on development, whether we have acted on it with red, green, or violet, or any other colored light; this result is the black deposit of silver so familiar to all photographers. Hence it is necessary to analyze the light coming from our colored object into its various components (and as we have seen, these will be at the most three) and record each separately.

This is most easily done by interposing in the path of the light coming from the objective a medium which absorbs all the wave-lengths but those of the component it is required to record, such a medium is called a color-filter.

It is here that the accepted authorities upon this subject chiefly disagree, in so far as to how much of the three regions should be recorded by each filter. Now, theoretically, it would seem that the view taken originally by Mr. F. E. Ives is the right one, viz., that the filters should allow the exact amount of light, as shown by the ordinates of Maxwell's color mixture curves, to act on the photographic plate, or, in other words, if we took a photograph of a spectrum through such filters, the densities of each portion of the resulting negative should correspond to the color-mixture curve. Such negatives would therefore show decided maxima, and gradually shade off from them. It has, however, been recently shown by Mr. Bull and the author, in a paper before the Optical Society, that such filters have a critical exposure, and will only give imperfect color-rendering unless all parts of the subject photographed have equal brightness; for there is a certain minimum amount of light action which will affect the plate, and hence, where the less dense portions should be recorded, we should have clear glass. Further than this, the excessive overlap of the red and green records of

such filters produces considerable degradation of the greens in the final reproductions.

On the other hand, some workers recommend that the filters should not overlap at all, others produce an artificial overlap by a second short exposure on the same plate with the next filter.

From a careful and systematic study of the filters at present on the market, Mr. Bull and the author came to the following conclusions:

First, that the filters should record evenly over their whole range, and present no maxima, but end abruptly.

Secondly, that the regions over which the red and green filters overlap should be restricted to that portion of the spectrum which accords most nearly in hue with the yellow printing color, and also the region of overlaps, for the blue and green records should accord in hue with the blue-green printing color.

Acting upon these conclusions, we have been able to construct filters which, on a suitably sensitized plate will give fairly faithful reproductions even of a spectrum, which is probably the severest test that could have been applied.

Having selected our filters, it becomes necessary to give with each the correct relative exposure. This is best obtained by including in some convenient place in the picture (where it can subsequently be masked out) a graded strip. This consists of a narrow slip of bromide paper, which has received a graded set of exposures of gradually increasing times, and which, on development, shows a set of patches graded from the black at one end to white at the other. Negatives taken through the filters will be correctly exposed, when the strips on each negative appear identical.

For development we have found a comparatively slow developer, such as diamidophenol, or glycin, which acts best when used with a factor depending upon the time taken for the image to first appear. Having secured our negatives, we have now to make the final reproductions. And here two courses are open to us: We may avail ourselves of what is known as positive or negative synthesis.

Suppose we make a transparency from one of our negatives, say the red one. The black parts of this transparency will represent those regions over which the light has not acted, and the less dense areas in proportion as the light has acted, and hence, if the positive be placed in the path of a beam of red light, we shall produce a picture of the red component of the original; if we similarly use the green and violet records we shall obtain similar component pictures. If all three pictures are superposed on a screen they will combine, and we shall have a resulting picture representing all the original hues. This is known as positive synthesis, a method which has been very carefully worked out by Mr. Ives, and is the principle of his photochromoscope. Its disadvantage is that it requires three separate positives, which must be illuminated from three separate sources of monochromatic light, and it also necessitates an optical arrangement to effect the superposition for ordinary viewing, or a special form of lantern for projection work.

The second process, and the one much more widely used, is that of negative synthesis.

Here we generally make use of the properties of bichromated gelatine, which, when exposed to the action of light is insoluble, even in hot water.

Prints are taken from our three negatives upon such bichromated gelatino-bromide film spread upon a thin celluloid or mica support, and these prints are developed into reliefs in hot water in the ordinary manner of carbon printing, and fixed out. In the resulting print the thickest part of the film will represent those parts of the original which gave the least light action through the filter used, and the thinnest where the light action was the strongest. The next step is to dye and superpose these positive films.

Now, suppose we take the film printed from the red negative, and consider what color we should dye it. Obviously, where the original red and yellow light acted on the negative will be represented on the final print by an area of soluble gelatine, which, on development, will be washed away and leave the support bare, hence the film which is left on the support will represent all the colors not recorded through the filter. Now, if we take a

spectrum, and combine all but the red and yellow region, the resulting light is a blue-green color, hence we should dye this positive blue-green. Similarly the print from the green filter record must be dyed with a color which is the summation of all the colors of the spectrum, except those of the region recorded, which in this case is a crimson. And lastly, the print from the violet filter record will print in a color formed of the sum of all the wave-lengths but its own region, and this will be a yellow. Hence we have three transparencies of the original, one a blue-green, one in crimson, and a third in yellow.

Let us superpose these three prints in register, and what do we find? At parts where all three colors of full strength overlap we have black produced. Where the blue-green and yellow overlap we have green, since the yellow dye absorbs the blue, and the blue-green dyes the red, leaving only the green. Where the blue-green and crimson overlap we have blue, violet, and so on. Thus, by dyeing the films in dyes which correspond in hue to the sum of the wave-lengths not recorded by the filter, and superposing the resultant prints, fairly faithful reproductions may be made.

There are two methods by which the superposition of the dyed prints may be accomplished. First, if the supports are made sufficiently thin they may be simply bound up together in register. The other method, used originally by Messrs. Lumière, of Lyons, is to strip the films into contact; this is a rather troublesome method, and requires considerable skill in manipulation, but the results are superior to the first method, since the reliefs are in optical contact.

Until quite recently, tricolor of this type was restricted to transparency work; but a modification has been lately introduced which renders it applicable to paper work. This was first put on the market by Mr. Sanger Shepherd. It depends upon the fact that, if a film of hard gelatine be dyed with a soluble water dye, and then placed in optical contact while wet, with a wet soft gelatine film, the dye will be slowly transferred from the hard to the soft gelatine without any appreciable spreading. The process is briefly as follows:

A faint bromide print is made from the red filter negative, on a smooth bromide paper, preferably heavily coated; this print is developed and fixed in the ordinary way, and then toned blue with ferricyanide of potash and ammonia citrate or iron. It is then washed, and, while wet, a gelatine relief, made and dyed as above, say, with the crimson dye, is squeegeed into contact and left until sufficient of the dye is transferred, and is then stripped off, and the resulting print in two colors is similarly treated with the yellow relief. In this way we obtain in the one film a result similar to that obtained in the transparencies. It should be mentioned in passing that the Lumière stripping process can also be applied to paper work.

In conclusion, one cannot leave the subject without reference to the elegant method devised by Prof. Jolly, which depended upon positive synthesis also. This method consisted of taking a single exposure, through a screen ruled with a number of fine parallel lines, alternately red, green, and violet, upon a suitable plate. An ordinary lantern transparency was made from this negative, and this, when placed in contact with a second or viewing screen, ruled in a similar manner with red, green, and blue lines, showed the original in natural colors.

These screens are somewhat expensive, owing to the accuracy necessary in ruling them, and as each positive requires a separate screen to be bound up with it, the expense made it prohibitive for ordinary use.

It has, I believe, recently been withdrawn from the market. Although great activity is at present being displayed in this subject from the process worker's side, there are still many important fields for expert investigation, particularly on the more purely photographic side.

And with increase in speed of filters and plates in the less sensitive regions of the spectrum, coupled with a method of rapidity or preferably of simultaneously making the three exposures, the field of usefulness of the process will be greatly extended.

BRUSH DEVELOPMENT FOR PLATINOTYPE PRINTS.

UNDER the above title a writer in *Focus* makes the following suggestions which carry a good deal of interest to the professional who seeks new methods and dainty effects in printing. While it is probable that no modifications of platinotype print as outlined would be available for any considerable number of prints from the same negative, owing to the variation that would naturally result from this kind of work, it is quite probable to apply it in single instances or for a small number of prints. In these days of close competition and new effects, the progressive worker does well to keep in touch with any method that will enable him to show new or striking photographs. This treatment of prints has brought more than one successful photographer into prominence, and is the means by which many more may reach that same envied position. The writer says:

"The development of platinotype prints by means of a brush charged with developer is not practised to any large extent by professional photographers. Yet there is little doubt that the method places in the hands of the worker a means of controlling prints which otherwise would be spoilt if developed by the ordinary process of immersion. To obtain complete mastership over a print in all the stages it has to pass through before it is complete is the aim of every worker; but this degree of control is seldom acquired unless the process is extremely simple. We are told by many that the platinotype process is easy. This is not true, unless we are content to pass over such faults as "meanliness of print," or bronzed shadows, and do not mind placing in our album prints which have an unpleasant yellow appearance. Want of control in platinum printing is experienced by many; but the brush method of development here advocated will be found to give not only free play to the worker, but will assist him in displaying his individuality. Certain portions of a print may be subdued, while others may be brought out with fine effect. Again, weak negatives are of little use if the worker is going to develop the prints in a bath solution, but by following the method under discussion really effective prints may be obtained by the exercise of a little skill and dexterity. In a like manner, dense, hard negatives may be made to yield prints which with a small amount of trouble can be considerably softened. The whole process, however, rests upon the ability of the worker in manipulating the brushes.

"The necessary materials cost but little; indeed, a few brushes varying in size from a fine spotting brush to a 2-inch flat dusting brush; a pound of glycerine; four cups, a plentiful supply of good fine white blotting paper, and a sheet of glass, form the whole outfit. Of course, it is supposed that the worker has already the usual cold bath platinotype developer of the normal strength. The cups should be placed in a row. In No. 1 pour a few ounces of pure glycerine, in No. 2 one ounce of the developer, an equal quantity of glycerine, and double the quantity of water; in No. 3 pour equal quantities of glycerine and developer, and in No. 4 a few ounces of normal developer.

"In the centre of the sheet of glass (which for convenience sake may be double as large as the print) pour a small quantity of pure glycerine, and coat the whole surface, using the largest brush for this purpose. Then place the print face up on the glass. With a fairly large brush charged with pure glycerine cover the face of the print quickly, and then use blotting paper to take off the superfluous liquid. Once more cover the print with the glycerine, and allow it to remain on the surface of the picture for a minute, then with a small piece of blotting paper blot the glycerine off the portions of the print which you wish to develop first.

"With a small brush charged with solution from cup No. 2, coat the parts of the print which are to be most prominent (detail), and then, using alternately the blotting paper and solution, develop the whole of the print gradually. At times you may find that certain portions of the print are developing too freely. Immediately blot off the developer and cover the portion with pure glycerine. Remember always that when parts of the print are

coated with glycerine they will not develop; and it is quite possible to develop the high lights first, cover them with glycerine, and then turn your attention to the shadows.

"The subsequent operations of cleaning, working, etc., should be carried on in the usual style. It is only possible to give the general methods in such a process as this; and the modifications which are practised by experts may be left until the worker has mastered the preliminary details of the operations. One great charm that the method possesses is that the worker may take his time; in fact, it is a great mistake to hurry the operations in the slightest degree. It is also possible to give a realistic appearance in portrait prints by developing the face and hands with a solution of mercury 1 part, normal developer 8 parts. Do not overload the brushes with developer or glycerine, and use a plentiful supply of blotting paper.

"From the above instructions the reader may gather sufficient knowledge of the process to enable him to make a very respectable beginning; but at the outset a considerable number of failures will undoubtedly make their appearance.

"Gum-bichromate is probably the only other process wherein the same opportunity presents itself of dodging, faking, and otherwise obtaining pleasing results from poor, weak negatives. But the gum process does not possess one great advantage which is a very big inducement to many to adopt the above method: the advantage of being able to see the full outline of the image before and during development. Moreover, in the former process it is not possible to exercise so much control over an overexposed print, while a platinotype print which has been accidentally left too long in the frame may easily be saved from the depths of the waste paper basket, if the brush development method is adopted."

HONEST PORTRAITURE.

THE importance of handing down to posterity representative portraits of men and women who, during their lifetime, have exercised a moulding influence upon the history of their times can hardly be overestimated. The younger generation coming upon the field of action forms impressions concerning the personalities of those who have gone before them, sometimes fairly accurate and often wholly wrong. In the days when painting and sculpture were the only means of picturing poets, authors, statesmen, and heroes, it is easy to understand that the portraits were more or less influenced by the personality of the artist. It would seem that with the advent of photography those elements of personality that entered so largely into the production of the painter and sculptor would be eliminated, and at first thought one might be expected to say that a photograph must be an accurate representation of the person pictured by the camera.

The Nation, in a recent editorial, calls attention to the fallibility of photography and to the likelihood of its interpretation of portraiture being influenced by the personality of the operator.

"All the arts employed in portraiture break down somewhere. Who can put his finger infallibly upon the true bust of Cæsar? Is the Stratford bust or the Droeshout print more like Shakespeare, or is neither a veracious presentment? Shall Houdon, Peale, or Stuart fix for us the lineaments of Washington? May we rest in Carpenter's oil painting of Lincoln, or in Marshall's engraving, or in Saint Gaudens' Chicago statue? But with Lincoln we are already in the age of the daguerreotype and the photograph. Yet this only increases our perplexity, so numerous and diverse are the camera's reports. Bad posing and focusing distort and vulgarize; and then the man himself, sun-pictured at various ages, undergoes great changes of expression, takes on new lines of care and responsibility and sadness, from beardless becomes bearded. In the end, everybody forms a sort of composite image of the great statesman, and selects whatever print or photograph comes nearest to this abstraction.

"Photography from life does, indeed, enable us to form unerring inferences about the subject's appearance, at least in a general way—the fashion of the hair, for one

thing, the size and shape of nose, mouth and ears, the space between the eyes, the character of the brows; yet each liable to correction for untrue planes, points out of focus, and the maladroitness or trick of the printing.

Retouching, Rembrandtesque lighting conceal features essential to be known, or falsify the complexion. Deliberate flattery is the fortune of many photographers; but with the best intention to be honest, he may and perhaps must fall short quite as often as he produces something authentic."

AN ENGLISH VIEW OF STUDIO ADVERTISING.

WHEN, about a year ago, WILSON'S PHOTOGRAPHIC MAGAZINE began the publication of a series of articles on studio advertising, the subject had received but the scantiest possible attention in the photographic press of this country or abroad. Whether or not the publication of these articles has had a tendency to stir up interest in the matter, or whether the interest that has been aroused in recent months is due to the natural sequence of events, we will not venture to assert. It is possible that had not the matter been inaugurated in WILSON'S it might have found expression through other channels as the time became ripe for its introduction. Certain it is, however, that a wide-spread interest has been aroused in the necessity for proper publicity methods in the ordinary photographic studio, and a number of articles have appeared in the American photographic press bearing on this matter. That the English photographers are also becoming aroused to the necessity of finding some means of reaching out and increasing the demand for their products is also becoming evident; and an article appearing in a recent number of *Photography*, forming part of a series of writings upon the general conduct of a photographic business on the other side of the water, bears some very pertinent statements and suggestions on the subject. It is interesting to note how closely akin are the views of our British cousins to our own; and in order that a parallel may be drawn, we quote a few extracts from the article in question:

"The question of advertising is one which nowadays must come to the front. Some favored few may be able to dispense altogether with this art, but for the majority it is essential in one form or another. I leave out the fact that every photograph sent out from the studio is in itself an advertisement, and a lasting one, because, although this point is often mentioned as an advantage possessed by photography, it is forgotten that it only becomes valuable when a business is well established. The man commencing in business will find all his competitors well ahead of him in this respect, and in early days it is necessary to devise other means of attracting attention to himself.

"I use that phrase advisedly, because I think the more a photographer succeeds in demonstrating the fact that he has a personality, the better and more lasting will be his success, though at the same time the more difficult will he find it to sell his business. It is the men without personality who turn out mechanical work having every appearance of the machine-made article."

The writer urges the importance of issuing circular matter, price lists, and illustrated announcements which shall show the work of the studio, and also suggests the advisability of accompanying such matter by a postal card containing blank appointments for sittings.

Concerning this latter suggestion, he says:

"The idea of having a postcard inset which can be filled up for an appointment is a good one, if for no other reason than that it suggests that the photographer is a busy man, and one, moreover, who cannot be always ready to photograph a chance caller in two minutes and let him go again. People often need to have it impressed upon them, in a quiet, dignified way, of course, that to go to be photographed is something rather different from making a purchase of a pound of tea.

"It should be unnecessary to do so, but it may be well to note on the appointment card that punctuality is important. I have heard of sitters being an hour late for the appointment they booked, and then grumbling when on arrival they found the photographer busy with someone else."

This latter suggestion we believe to be a good one for adoption in our own field here, as it will have a tendency to remind the recipient more forcibly than a mere announcement might do, that the subject of a sitting is of direct personal importance to him or her. The reading of the appointment in blank implies the obligation on the part of the reader to acknowledge it in some way, and the easiest and most logical way would be the filling in of the blanks and dropping the card into the post-box.

The experiment is one that may be tried at comparatively small expense among a selected list of would-be customers, and we shall be glad to know, if any of our readers make the experiment, what results they can trace to it.—[ED. W. P. M.]

A REVIEW BY THE LATE MARQUIS OF SALISBURY ON PHOTOGRAPHY.

IT cannot but be of interest to readers of WILSON'S PHOTOGRAPHIC MAGAZINE to come in touch with an opinion on photography given by the Marquis of Salisbury in its early days. Writing in the *British Quarterly Review* for the year 1864, Lord Salisbury says:

"Of all the marvellous discoveries which have marked the last hundred years, photography is entitled in many respects to take its rank among the most remarkable. It will not produce the same widespread effects upon the social condition of the human race that have been and will be the result of the steam engine and the electric telegraph. It will not bring any such mitigation of human suffering as has been caused by the discovery of chloroform.

But it occupies a position distinct from these in the perfect novelty of its results and their more direct connection with the world of mind. It is not merely an improved mode of doing that which has been done before. Carriages were drawn, and shuttles thrown, and signals sent from distant points before ever Watt or Wheatstone were heard of. But the work which Boulton and Wedgwood are supposed to have begun, and which Talbot and Archer perfected, has done a new thing.

It has forced the sun, which reveals to our senses every object around us, to write down his record in enduring characters, so that those who are far away or those who are yet unborn may read it. It has furnished to mankind a new kind of vision that can penetrate into the distant or the past, a retina as faithful as that of the natural eye, but whose impressions do not perish with the wave of light that gave them birth. Photographs regarded as evidence of that which they represent differ in essence from every other species of representation that has ever been attempted. They are free, so far as their outlines are concerned, from the deceptive and therefore vitiating element of human agency. The work of the artist may be more beautiful, but it can never be so exact. Philosophers have pleased themselves with the fancy that the scenes that passed upon this earth thousands of years ago have not really perished, but that the waves of light which left the earth then are still vibrating in the illimitable distances of space, and might even now be striking in some far-off fixed star an eye sensitive enough to discern them. Supposing that photographs are preserved with reasonable care, the philosophic dream may be a reality to our remote posterity. Lord Macaulay's New Zealander, when he goes home from his perilous exploration of Great Britain, may gaze in some Antipodean museum upon a picture of the entry of Princess Alexandra into London, traced not by some careless or courtly human hand, but by the very rays of light which were reflected from her face and from the various persons and objects around her."

How nearly correct was the prediction of this brilliant intellect forty years ago may easily be seen by the progress that the present day marks. What further developments the future has in store for us will only increase and improve the products of our art and tend to render more forceful the views expressed at that time.

THE ILLINOIS CONVENTION

THE Sixth Annual Convention of the Illinois Photographers' Association, which opened on Tuesday, May 2d, was one of the most successful in the history of the association. The meeting-place was Aurora, and the convention was attended by about two hundred members of the association.

Addresses were given by Felix Raymer, of the Illinois College of Photography, on "Lighting;" Geo. M. Bolton, Secretary P. A. of N. E., on "Child Portraiture;" Prof. Vanderpool, of the Chicago Art Institute, on "Theory and Practice of Art in Photography," and an address by Geo. M. Halloway, Secretary P. A. of A.

Numerous demonstrations of plates, papers, the Cooper-Hewitt mercury vapor light, etc., were made. Effingham, Ill., was chosen as the place of meeting for next year's convention.

The following officers were elected: President, R. I. Spafford; Vice Presidents, E. C. Pratt and W. S. Stout; Treasurer, R. H. Mann; Secretary, J. K. Smiley.

A proposition was brought before the convention by Mr. F. Dundas Todd the the intention of which was to raise the business standing of the profession by enforcing upon new members entering it a sound preliminary training, followed by a college course and test examinations. On successfully passing these examinations certificates would be issued entitling the holder to the confidence of the public as a thoroughly good photographic workman, in good standing in his profession. A committee was appointed by the President to co-operate with Mr. Todd in the carrying out of this suggestion.

THE WORLD'S FAIR CONVENTION P. A. OF A.

As has been announced, the 1904 convention of the Photographers' Association of America will be held in the Forest Park University Hotel, St. Louis, October 3d to 8th inclusive. These are the buildings of the Forest Park University, a ladies' boarding-school, and a most delightful place for holding a convention, being situated within five hundred feet of the southeast entrance to the World's Fair Grounds, and directly on car lines from the Union Station. All cars going west past the station run directly in front of this hotel. The hotel is under contract with the association to furnish accommodations at one and two dollars per day, European plan. There are two dining-rooms in connection in which service can be had a la carte. The hotel is to be turned over to the exclusive use of the photographers for the convention week, and to secure accommodations it is necessary to have a receipt from the treasurer showing membership. There are other hotels and boarding-houses in easy access, where various prices prevail.

The large gymnasium and class-rooms furnish ample room for the display of pictures and business sessions, and many unfurnished rooms in connection with the exhibit-room are at the service of the manufacturers and dealers.

The date of the convention is at the best time of the year to see the Fair, as well as best time for good railroad rates. The idea of holding the convention in the hotel where the members can live is a novel one, and is especially popular this year, as the crowd can be held together for the sessions, and can visit the art gallery of the Fair together later.

It will be the policy this year to hold only forenoon sessions, and have them on schedule time. This will allow the after-

noons and evenings to visit the Fair, where will be found a feast of art and amusements to last a lifetime.

One or more artists of repute will be employed to visit the Art Gallery with the members and review the pictures with them, making it doubly instructive and interesting.

Great effort is being made to make the exhibit of photographs this year such as has never been equalled by the association, and the attendance promises to be unusually large. An interesting program will be prepared, and altogether the convention this year will be a good one, as well as a most pleasant one. This being an educational convention, good pictures are solicited from all sources. It is the duty of all enterprising photographers to assist in upbuilding the profession, and they will be found in line this year as usual. Detailed information will appear in due time from the Secretary.

C. R. REEVES, President.

MUNICIPAL PHOTOGRAPHERS.

THE professional photographer who is bound up in the detail of his own business, which oftentimes embraces nothing but portrait work, frequently fails to get a comprehensive view of his profession. Such an article as the following, which appeared in a late number of *The Independent*, serves to open up a view from an outside point of observation in such a way as to enforce appreciation of its tremendous scope and importance in the world to-day. Let not the portrait photographer of narrow vision fancy that in his own little circle is comprehended all or more than a very small tithe of the possibilities covered by the profession.

When the lay press is able to point out such applications as are mentioned in the following short squib, and when we remember many of its more important uses in astronomy and other sciences, we cannot but realize that we to-day are working out our share in the destiny of a profession that is full of future possibilities.—[ED. W. P. M.]

"Photography, long a successful adjunct of the criminologist, is to be made to serve a similar part for the municipal administrator. Philadelphia is to have an official photographer, whose main duty it will be to take the photographs of the condition of property before and after work upon it or in the near vicinity has been commenced. Contractor John B. MacDonald went over the whole route of the New York Subway with his subcontractors and had photographs made of every site where it was intended to excavate. In this way he secured for preservation and future use indisputable evidence as to the actual condition of affairs. Now Philadelphia proposes to do this thing officially, and make an official record of all public work.

It has already been demonstrated that large sums of money can be saved to the city, both in the way of defeating unjust claims of property owners for damages, and in the way of disclosing failures to comply with the terms and specifications of contracts. Moreover, official photographs will be made of all public works and buildings, to be filed away for historical purposes. Several years ago, when Independence Hall, in Philadelphia, was being restored, no one could find a print to show how it looked a hundred years ago. The official photographer will supply the records by which future restorers can do their work expeditiously and accurately. Thus Philadelphia is but following in the footsteps of the executive departments at Washington, every one of which has its official photographer, whose work consists in preparing illustrations, preserving records and reproducing all sorts of data. Photography is also being used in the perpetuation of Government records, and the thousands and tens of thousands of State papers are to be photographed and a comprehensive index of the negatives made. In this way records which now consume cubic yards of valuable space will be preserved in cubic inches.

COLLODION TROUBLES.

THE glorious uncertainties of the wet collodion process move the writer in an editorial on this topic in the *Zeitschrift* to open his first paragraph with the words, "Im Kollodiumverfahren lernt niemand aus," which may be freely paraphrased in the language of a now famous advertisement: "With wet collodion, you never know your luck." The usual care and knowledge may be applied to the work, yet the result departs more or less from its normal standard for no discoverable reason.

Two phenomena are especially liable to creep up: (1) Fog which suddenly appears, without being attributable to the state of the silver bath or to the developer, and as suddenly disappears again, and (2) the non-adhesion of the film. The latter defect especially is the cause of endless difficulties in process work. The collodion film which yesterday held toughly and securely to the glass, separates from the intensified negative on washing, or, more frequently, on drying. The film is so brittle that it loses its coherence, or, at any rate, cannot retain its hold of the glass surface. There are two different reasons for the evil. An excessively brittle film is due either to the collodion cotton itself or to the quantity of water in the collodion. The first cause is seldom met with at the present day. If one compares the pyroxylin as now made with that of twenty years ago one finds good reason to congratulate manufacturers on the progress they have made. The pyroxylin now sold almost invariably gives very tough and resisting films.

Brittleness arises from an unsuitable proportion of water in the collodion, and the water may be admitted with the alcohol or or ether, or both. The result is a friable or rotten film, the exact character of which depends to a great extent upon the methods of the operator. The film tends to become more and more friable the longer one waits before dipping the collodionized plate into the silver bath.

A more usual cause of a film, not necessarily rotten, leaving the glass is insufficient means of causing its adherence. The several substrata are very different in their properties. Good collodion will frequently stick to a well-cleaned glass plate without any preparation whatever, or it is often sufficient to edge the plate with rubber solution to produce a completely adherent film. Even with bad cleaning and unsuitable collodion a proper adherence can be obtained with a rubber-prepared plate. A very convenient method of preparing the rubber solution is to dilute the ordinary cyclist's solution with twenty to forty times its volume of pure benzole. This preparation is preferable to a gelatine substratum under all circumstances. There are brands of gelatine which, when in such thin films as are suitable for this purpose, are completely soluble in cold water. The result of such preparation is naturally the separation of the film. Tanning agents, such as chrome alum, overcome the difficulty only to a slight degree in many cases. It is therefore advisable, if gelatine is to be used, to employ a very hard brand in not too thin solution. The following formula gives excellent results with wet collodion as well as with collodion emulsion: Hard cooking gelatine (30 gms. or 1 oz.) is put in water to swell, and then dissolved in hot water (3000 c.c. or 105 oz.); 50 c.c. (1¾ oz.) of a 1 per cent. chrome alum solution (previously neutralized) is then added. Plates may be given a substratum with this mixture and stored in a cupboard until wanted.—*Process Photogram.*

PORTRAITURE.

IN a recent lecture before the Oxford Camera Club of England the lecturer, Miss Hopkins, said:

"No one will dispute, I think, the assertion that portraiture (including figure studies) is the most attractive of all the branches of photography. It is also the most difficult to practise, and many are the failures and dire the disappointments in the pursuit of this seductive art. I can

consider only portraiture proper—*i. e.*, pictures in which the portrait of an individual is the main thing aimed at. A figure or head study, however pleasing, which does not give the characteristic points of the sitter, is not a genuine portrait, though very often accepted as such if it happens to please the sitter. It has been recently said by an authority we all respect that amateur portraiture is hardly ever successful. This judgment, most people, I think, will allow, is far too sweeping. In fact, it is the case that many of the most striking portraits shown at exhibitions have been the work of amateurs in the true sense of the word—*i. e.*, lovers of the art for its own sake. This, perhaps, explains their success, for only a genuine enthusiasm can inspire the perseverance necessary to overcome the many obstacles which present themselves. Other qualifications are, of course, very essential to success. No other department of photography demands so much artistic taste as this. I think we can see that the majority of the worst failures publicly exhibited are due to lack of taste and artistic knowledge. Merely technical failures are not so often seen (at exhibitions any way); the photographer alone knows the size of the pile of waste prints which accumulate with such terrible rapidity in his work-room. Unfortunately artistic taste does not always go hand-in-hand with technical ability. Training, however, can do an immense deal for the eye, and the more we study good examples of portraiture, both in painting and photography, the more critical do we become of our own crude efforts, and the more able to produce something better. Let us now consider some of the difficulties the aspiring portraitist has to contend with. First we must place sitters. There are two sides to this, as to all other questions—at present I am looking only at the photographer's. Was there ever such a difficult person to please as the sitter for a portrait? He or she (especially she) seem to have an ideal representation of themselves in their minds which they expect to see realized. It must be allowed that this ideal portrait has a certain foundation; in fact, everyone has their best moment, their "well-looking days," as the lady in the "Spectator" said. Unfortunately we cannot produce these at will, and rarely are they to be caught in a sitting, lasting, perhaps, half an hour. On the contrary, the nervousness induced by "sitting for one's portrait" often causes a strained and unnatural expression, for which the unfortunate photographer (who perhaps has never seen his sitter before) is blamed. Then we have sometimes to reckon with people who want to look much younger than they are, or to resemble the style of some one quite opposed to their own. The relations and friends of sitters are often more exacting than themselves, and will quite put a person out of conceit with a portrait they were well pleased with at first. Sitters have genuine grievances very often, of course, and I have seen so-called portraits by two well-known London photographers which were simply a libel on their originals, and others which were quite unrecognizable. The usual cause of these things I shall allude to later on. Then how few people can really sit still! This is one of the amateur's great troubles, for he is generally not in possession of a studio light, nor perhaps a very quick-working lens. In this difficulty he often resorts to out-of-door snap-shots, which seldom turn out well as portraits, though they make amusing pages for the album. As to posing and lighting, some sitters pose naturally and well, but they are rare. They generally have to be led or driven into assuming what ought to be graceful attitudes, but which are often quite unsuited to the particular individual. For instance, an eminently straightforward person will be made to look darkly mysterious, or a common-sense, practical woman to twist her head over her shoulder and gaze sentimentally upward. We see these anomalies more often in professional portraiture; the amateur too often allows his sitter to pose as he or she likes, with frequently fatal results. Limbs and features out of proportion, eyes askew and mouths apparently awry, are frequent items. Perhaps the hands constitute the greatest difficulty in posing. So hard to manage are they that they are more often than not put out of sight, which is a pity, because they are very characteristic and add much to the interest of the portrait. Feet do not trouble much, as full length is

not now in fashion except to display a court train, uniform, or fancy dress. Time was, however, when full length seems to have been the favorite style of portrait, judging by old albums. The portrait then consisted chiefly of costume and accessories, the latter a work-table or jardinier for a lady, and a pillar and curtain, or an impossible writing-desk, for a gentleman. Lighting, as I have said, is a hard matter in ordinary rooms. Reflections often make matters worse. What used to be called "Rembrandt effects" can be got in a badly lighted room, but they generally destroy the likeness, and are not acceptable as portraits. The question of accessories is a difficult one, very few objects proving suitable for portraiture. In any case they are liable to distract the eye, and for that reason should be chosen with great care. Unfortunately, friends generally prefer to pose in the midst of their belongings, and the only satisfaction to be gained from such a portrait is that of having pleased the sitter. Retouching is not always a success in professional photography, and still less so with amateurs. The movement of sitters can be guarded against by the provision of a comfortable head-rest. In the matter of posing and lighting much may be learnt from the study of old masters, although exact copies of the costume are undesirable. The question of backgrounds should have been included in the difficulties, bad backgrounds often spoiling good portraits. The dark mysterious background characteristic of Velasquez can be imitated by posing in front of the open doorway of a dark room or cupboard. In all cases simplicity should be aimed at. The question of costume and drapery belongs more to pictorial figure study than portraiture, but ambiguity must certainly be avoided, except, of course, in the photography of theatrical and fancy dress.

NEWS AND NOTES.

Titling Negatives. This is a matter that troubles many photographers, although many formulas have been given from time to time. The following is said to make a fine ink for this purpose, which may be applied with an ordinary pen point. Dissolve in methylated spirit a small quantity of maroon aniline, enough to make a strong, brilliant solution. The solution is sometimes obtainable ready made for use in dyeing fabrics. Add to it an equal bulk of water and a little gum solution or glycerine, just enough to give consistency to the solution and prevent it running too freely from the pen. The title must be written backward if put upon the film side of a glass negative, but may be written in the ordinary way upon the back of a film or paper negative. A very little practice will enable a careful worker to title negatives beautifully with this medium.

Negatives on Bromide Paper. In the making of large negatives for copying purposes, many advantages will result from the use of bromide paper in place of glass. First, the negatives are much less liable to damage by breakage; second, the bulk and weight are very much reduced, and the negatives easily stored; third, the expense of the bromide paper is very much less than that of glass. Smooth bromide paper will be found best adapted to this use, and prints from negatives, after being developed, fixed, and dried, may be made without further treatment, and the bromide paper may be waxed before printing. In the latter case the printing will take about one-third as long as if made with the unwaxed paper. No trouble may be anticipated from the grain of the paper, which will not show in the least, and a decided advantage will be found if any retouching or working up is required on the negatives, as this may be done upon the back of the paper with a stump, crayon, or pencil much more effectively than on glass.

Photographs in the Dark. A series of experiments recently carried on in Germany in photography in absolute darkness are reported to have produced an excellent photographic portrait with an exposure of forty-five seconds. The negative is said to have been made through a large screen constructed on the principle lately advised

by Professor Wood, of the University of Wisconsin, through which only the ultra violet or invisible rays are allowed to pass. It is reported that this negative is full of detail, and the fact that it is made in utter darkness is strongly evidenced by the pupils of the eyes of the sitter, which are shown fully dilated, a condition which could not have prevailed were any light present. Further experiments are in progress, the results of which are awaited by the scientific world with interest.

Drying Negatives with Spirit. You can dry a negative very quickly—within five minutes—by taking advantage of the property of methylated spirit to displace the water within the pores of the gelatine. Once the water is removed the spirit volatilizes quite readily in the air, leaving the negative dry within a few minutes, but to succeed with the method it is most necessary that the water should be thoroughly removed, and this will not be the case unless it is placed in a bath of strong spirit. If a number of negatives are being handled the water extracted from each soon weakens the spirit, and that is why the following procedure should be adopted: Take three batches of spirit, place the negative in Nos. 1, 2, and 3 in turn each for five minutes, filling bath No. 1 with a fresh negative as soon as the first is in No. 2, and so on, keeping the three dishes occupied. As soon as the negative comes from the third bath it will dry almost instantly on being waved in the air. Though not necessary, it is a good plan to mop off as much surface moisture as possible, before putting the negative into the spirit, with a soft cambric pocket handkerchief. In the course of time all the spirit baths naturally become weakened by the absorption of water. Then they should be collected in a big bottle and dry potassium carbonate, in fair quantity, added and shaken occasionally. The water will be absorbed by the carbonate and will collect at the bottom of the bottle as a heavy liquid. The renewed spirit can then be poured off.—*Photography.*

American professional portraiture, as shown at a recent exhibition in London, under the auspices of the Kodak Company, received a very high meed of praise at the hands of the *British Journal of Photography* in an editorial of recent date, as follows:

"The dominant characteristics of American professional portraiture of the kind submitted to our inspection this week may be succinctly described as combining well-concentrated effects of lighting with ease, freedom, and dignity of pose, the print registering every nuance of a well-graded negative. You are conscious in looking at these prints that they are the outcome of a thorough mastery of technique; so many object lessons, in fact, of non-mystical lighting, posing, developing, and printing. As such the collection is well worth studying by our professional readers who may wish to know what is in request by the profitable clienteles which, we understand, abound in the States."

Surface reflection has by recent experiments been shown to be the chief cause of hinderance in photographing objects beneath the water, and certain evidence lately adduced in investigating a submarine disaster on the other side brought out the statement that if the camera were elevated sufficiently high above the surface of the water to avoid surface reflections, objects might be photographed at a great depth beneath. This statement was demonstrated by a photograph made by Miss Gertrude Bacon in which the sea bottom was plainly visible at a very considerable depth.

A Hint for Securing Expression. To know how to converse with the model is one of the essentials to success in portraiture.

Use one-quarter of the time of the sitting in photography and three-quarters in looking at and talking to your sitter. As a portraitist, accustom yourself to divide your forces—one-half of yourself must be a photographer, the other half the agreeable companion. You should always make your model forget that he or she is your model.

Rapidity of composition and execution is the great factor of success in portraiture. If your model informs you she would as lief have a tooth extracted, tell her there

is an excellent dentist around the corner. While she is recovering you have her picture, and she will order two dozen.—*Camera.*

A Formula for Silvering Mirrors. M. Schaer has recently given the following formula for the purpose:

A.—Sugar	90 g.
Nitric Acid	4 c.c.
Alcohol	175 c.c.
Water	1000 c.c.

This will keep, and the older it is the better it works.

B.—Silver Nitrate	1 g.
Distilled Water	100 c.c.

Add ammonia till the precipitate first formed is dissolved.

C.—Caustic Potash	0.5 g.
Distilled Water	100 c.c.

The actual silvering solution for a mirror of 30 cm. diameter is

Solution B	15 c.c.
Solution C	7.5 c.c.
Liq. Ammonia	22 c.c.

to be mixed in the above order and added to

Solution A	170 c.c.

The glass must be thoroughly clean, and the solution heated to 23° C. It is stated that the mirror thus obtained is extremely hard, polishes well, and reflects 98 per cent. of the incident light.

OBITUARY—JAMES F. RYDER.

It is with the profoundest sorrow that we record the death of James F. Ryder, aged seventy-eight years, at his home in Cleveland, on the 2d of June.

A pioneer photographer, Mr. Ryder entered the profession as a boy, in the city of Cleveland, where he very soon established himself at the head of the profession in that locality. It is claimed for him that he was the first to introduce the process of retouching negatives, shortly after its application in Switzerland.

His fame as a photographer rapidly extended until his reputation became widespread. When, in 1880, the first organized meeting of professional photographers was held, and the National Photographers' Association was formed, Mr. Ryder was elected its president. Since that time he has been a constant and beloved member of the association, and a strong advocate for all that pertained to the good of his craft. Of a genial, loving disposition, Mr. Ryder made friends everywhere who loved and esteemed him to the last. There is probably no member of the photographic profession whose death will be more sincerely felt than his. With his passing, one of the oldest and strongest links that binds photography of the present with that of the past has been severed.

Those who attended the last convention at Indianapolis, and were present in the convention hall when Mr. Ryder was called upon to speak, cannot but remember the almost pathetic nature of his remarks and the air with which they were made. It almost seemed as if he felt a premonition that his appearance upon the convention floor at that time would be his last.

In his long and well-rounded life he has done much to elevate the standard of photography, and even more to encourage and strengthen the hands of those who labored with him in its development. Thrown, as he was, into correspondence and personal touch with many of the most prominent men and women of his time, his acquaintance was wide, and few have had the honor of photographing a larger or more illustrious circle of men and women prominent in the affairs of life than he.

For the past ten years Mr. Ryder had not been actively engaged in his profession, but during all that time his interest in and love for the work never lagged.

His latest work, and one into which he had entered heart and soul, was the preparation and publication of his memoirs, under the title of *Voigtlaender and I*, in which are contained many passages that breathe the spirit of the man.

Mr. Ryder leaves a widow, one brother, and a sister. The sympathy of the profession will go out to them in their bereavement. His death will come as a personal loss to many who have found in him a friend and adviser of the highest merit.

EDITOR'S TABLE.

THE PHOTO-MINIATURE, No. 61, on "Methods of Control in Pictorial Photography" appears in an entirely new cover and style throughout. The body of the book is printed in a larger and handsomer face of type than its predecessors, and on paper of heavier weight. The same blue cover paper which has come to be a feature of the magazine is still used, while the title and cover design are printed from new plates specially designed and beautifully engraved. The superficial size of the *Miniature* remains the same as before, but its appearance is materially improved. No. 61 is finely illustrated, and contains a fund of information for the pictorial photographer. The price remains the same as always, 25 cents per single copy, or $2 50 per year.

THREE-COLOR PHOTOGRAPHY, by Prof. Dr. A. MIETHE, published in German by W. Knappe, Halle, A. S., price 2.50 marks, is just at hand. This volume forms Part 50 of the *Encyclopedia of Photography*, published by this enterprising German house.

Prof. Miethe in this publication presents a most interesting and valuable account of his investigations into the making of three-color photographs.

The work contains practical directions for the entire process, starting with the color sensitizing of the plate, and going on to a description of the camera, development, and making of the photographs.

The work is interesting from cover to cover, and evidently the work of a man who speaks from actual experience.

A SPECIMEN print from a charcoal drawing printed from an etched steel plate is before us from the press of the CHAS. H. ELLIOTT CO., Philadelphia. The specimen referred to is charming in its likeness to a charcoal drawing. The firm is to be congratulated upon the high state to which it has developed the process of steel etching by photo-mechanical means.

A CLASSIFIED LIST OF BOOKS ON PHOTOGRAPHY is the title of a very comprehensive catalogue just received from TENNANT & WARD, 289 Fourth Avenue, New York. This list embraces all the most desirable works on photography and its application at present obtainable in the English language, with publication dates, size, number of pages and price, as a guide to their intelligent selection by buyers.

Such a list fills an important place in the literature of photography, enabling the reader to find at a glance all the published matter pertaining to any given subject. A copy of this publication should be in the hands of every photographer for ready reference.

WE are in receipt of a booklet setting forth the advantages and facilities of the Levi Moore Studio of Albany, N. Y. This booklet takes the shape of a 32-page publication, printed upon fine half-tone paper, and illustrated with a number of specimens of Mr. Moore's work under the skylight. We note that an edition of three thousand copies of this brochure were printed, which certainly demonstrates Mr. Moore's belief in the efficacy of good advertising. Progressive men are coming more and more to believe in this method of bringing themselves before the public, and those who once adopt it almost invariably continue its use, sending out booklets regularly once a year, and in many cases two or three times during the twelve months. Mr. Moore is to be congratulated upon the get up of the booklet and upon his enterprise and good taste in the matter.

PHOTOGRAPHY in colors as demonstrated by a series of three 8 x 10 photographs lately received from Messrs. N. MILEY & SON, of Lexington, Va., may be said to be an accomplished fact. We do not remember ever to have seen any specimens of color photography that approach these. One of them is a reproduction of the Sir Godfrey Kneller portrait of Col. Parke (1707), another that of the famous Peale portrait of Washington, painted by the elder Peale in 1772. They are extremely good in the handling of textures and draperies, as well as flesh-tones, which are of remarkable purity throughout. The third specimen is that of a dish of peaches, rich in coloring and of great accuracy in tones and texture. The peculiar bloom of the fruit characterizes every individual subject in the group, and a peculiar transparency of color adds materially to their charm. Messrs. Miley & Son are to be congratulated upon the very marked advance they have achieved in this most interesting and valuable development of photography.

"PRINTING on Bromide and Gaslight Papers," just issued, is the title of No. 2 of Vol. I. of *The Practical Photographer*. It contains a series of articles on the manipulation of bromide and gaslight papers, by John A. Hodges, C. Winthrop Somerville, the Rev. F. A. Lambert, and others. This volume constitutes a valuable addition to the literature on this subject.

Home Portraiture, by FRANK M. STEADMAN, is just published by the EASTMAN KODAK CO., price of which in board covers is 25 cents, and in red leather, 75 cents. This publication is a practical demonstration of Mr. Steadman's method of timing exposures by use of a strip of solo paper, and for which he claims great simplicity and accuracy. It is written with special reference to the amateur, but contains suggestions of value even to the experienced worker.

THE blocks necessary to illustrate the fifth of a series of articles on *The Portrait and the Studio*, by H. SNOWDEN WARD, are not yet at hand, being delayed in entry and transmission through the custom house. It will be remembered that these blocks were sent to take the place of a set forwarded in season for the last issue of this MAGAZINE, but were received in a damaged condition, unfit for use. We feel certain that the series will be resumed in the August number, and we, trust, continue without further interruption.

By Gustave Lorey, Albany, N. Y.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. AUGUST, 1904. No. 572.

THE BUSINESS ASPECT OF PHOTOGRAPHY.

BY THE EDITOR.

THE professional worker, plodding along under the light of a studio which has served his purpose for many years with nothing to broaden his vision, is apt, unconsciously, to fall into a rut. His work will not unlikely assume a monotonous style with little to relieve it or mark it as being different from that of a year or more before. This tendency is not peculiar to photography. It exists in every walk of life and is the natural and logical sequence of living constantly among the same surroundings without changes and breaks in the routine of every-day life to broaden the vision. It is a tendency, however, that is to be deplored, whether in photography or elsewhere, and the man who can separate himself from his every-day surroundings, if not bodily, at least mentally, when occasion offers, is a fortunate individual. An early walk into fields or on the shore will oftentimes set the key for the whole day's work, and, as many of our most successful men can bear witness, a brief half-hour thus spent will oftentimes provide the inspiration for some effort in the studio that in later years stands out as one of the masterpieces of its handiwork.

A visit to the studio of some other man, and a chat over the conditions of trade, some new development in the working tools of the craft or mere interchange of good-fellowship, from time to time, is well worth a trial by any man who feels himself hemmed in and compassed about by the monotonous routine of his studio work.

Better than either of these, however, is the annual visit to the Convention, whether State or National, and the interchange of thought and experience that follows such a break. Without some such means as these the vision narrows into smaller limits year by year, and the worker views his profession only from a single point. He fails to realize the variety of aspects that photography takes on when seen from the broader plane of the all-round outside man, and failing to realize this variety, he misses many opportunities for extending his field of usefulness and profit. Whether the worker be actuated by the instinct which leads him to affect the æsthetic in photography, whether the artistic is the one end to which he aims, or whether his goal be the commercial side or the pictorial quality of photography, it matters not, so long as he devotes his best energies to the development of his chosen subject. But in whatever field he labors there is one aspect of photography which stands pre-eminent among them all. Without it success in any field may not reasonably be expected. This element is the business element, and it is one which is to-day receiving more attention at the hands of the thinking photographer than any and all the rest put together.

It is only by the development of the business end of the studio that its ultimate success or even its prolonged continuance may be looked for. In every other field of work may be seen a demonstration

of the "survival of the fittest," and in photography, too, competition and the increasing application of business methods to the conduct of the studio are becoming more and more apparent. It therefore behooves every progressive studio to give careful consideration to every change of conditions.

Bright men and women are coming into the profession from the ranks of the amateur and from the business colleges of the country. They are bringing with them business ideas and methods with which it has never before been familiar, and the studio which fails to recognize this fact is not unlikely to be rudely awakened to it in the near future.

The time seems to have arrived when the need of business methods in the average photographic studio claims attention. The photographer who for years has been content with working out his own salvation is now beginning to cast about him for a partner or assistant who can help him on the business end of his studio work. He may have been fairly successful all these years, but his bank account, if he has one, has not increased in proportion to his expenses of doing business. Many of us realize that we are capable of making better negatives and prints than ever before, and of giving to our patrons work that is in every particular vastly superior to that of former years.

Our patrons appreciate this improved work, and it would be hard indeed to palm off upon them to-day prints which a few years ago gave perfect satisfaction. Still, the output of the studio does not materially increase, nor do the profits rise to anything like their proper proportion of the gross receipts. There is a reason for this discrepancy, and it should be carefully sought and located wherever such conditions are found to exist.

This aspect of the question is a somewhat new one to the average man, and he wonders where he may better his condition. That many of us can do so we believe to be a fact, and that some of us are doing so is evidenced by the business combinations which include a good photographer and a good business man. It is an encouraging sign of the times when the studio which has been doing business on the old lines suddenly wakes up, takes in a bright, active business partner, renovates its walls and fittings, and sets out in the business world with the avowed intention of obtaining its own full share of all the business that can be created in its locality, and of doing it in a modern up-to-date business-like way. There should be room in every city or town of any considerable size for such a combination of business acumen and technical skill as this. Why do not more photographers see the possibility of profit in such an arrangement? The question is one that has often presented itself, and one which we believe is beginning to find a solution and profitable answer.

THE USE OF PYROGALLIC ACID.*

BY CHAPMAN JONES, F.I.C., F.C.S., ETC.

IT may seem a little strange that pyrogallic acid, one of the very few developers used from the first in photography, should still remain the standard in spite of the innumerable other developing agents that have since been introduced. We used to be told that ferrous oxalate ought to and doubtless would in time take its place, but ferrous oxalate itself has practically disappeared as a developer for negatives. Many of the new alkaline developers have been introduced as if their advent was the sign that pyrogallic acid was about to be supplanted; but it still remains, and it is considered by many not to be equalled by any other reagent.

Pyrogallic acid is not without its disadvantages. It stains the fingers perhaps more than any other developer; but this may be largely obviated by a little care, or the use of finger-stalls, or the application of some of the toilet preparations, such as lanoline, now so well known. Sometimes

* Reprinted from the *Australian Photographic Journal.*

it stains the negatives, but this it never ought to do, and never will do if properly employed, as subsequently shown. It is stated to be not so permanent in solution as some other developers. This certainly is true; but if not mixed with alkali, solutions can be prepared that will last in good condition for more than a year, so that it does not suffer much in this matter. But every disadvantage, imaginary or real, that can be urged against pyrogallic acid is additional proof of its superiority in other directions, for it remains the developer of many photographers of large experience, while others who avail themselves of the advantages of the newer developers use pyro for all important or valuable negatives.

Pyrogallic Acid Itself. The photographer has now the opportunity of choosing between the time-honored feathery crystals produced by sublimation and the more compact crystals produced from solution. Each form has distinctive advantages of its own. The sublimed acid dissolves almost immediately it comes into contact with water, and the method of its preparation is a considerable guarantee of its purity. The more compact variety is far less bulky, rather more easy to weigh out, and not so likely to get blown about and produce black specks on negatives by settling on the plates. The "crystals" of Messrs. Schering are of remarkable purity, and therefore very uniform in their action. A stock solution may be made usefully permanent by *slightly* acidifying it with nitric or citric acid, and if the weight of either is less than about one-twentieth of the pyro, and much less than this quantity of nitric acid will be found efficient, the effect of the acid in neutralizing the alkali added for development will be negligible. A quarter to half a drop of pure nitric acid, or five or six grains of citric acid, may be used to each ounce of solution. Probably the best preservative is the metabisulphite of potassium. Of this from one and a half to five grains per ounce of solution is generally recommended. A good average formula for an approximately 10 per cent. solution is:

Potassium metabisulphite	**. 36 grains.**
Water to	**. 9 fluidounces.**
When dissolved add pyrogallol	**1 ounce.**

The acidity of this quantity of metabisulphite may be disregarded in the developer unless it is required to be only *very* slightly alkaline; then it will be useful to know that potassium metabisulphite requires a little over twice its weight of crystallized sodium carbonate to neutralize its acidity. The exact amount cannot be stated because of the production of bicarbonate.

Sodium Sulphite. While purity of chemicals is desirable in every case, essential indeed for certainty of result, it is particularly necessary to get a good sodium sulphite, because this substance is specially liable to be impure. It is best to get a good sample from a well-known manufacturer, and to buy the unopened bottle or package as issued by him, not an ounce or two that the local dealer has to weigh out. It is an error to suppose that the quality of a sample can be told merely by its appearance. A *perfectly* good sample would look good, but a little whiteness on the surface of some of the crystals is not sufficient to condemn it; indeed, such a sample may be superior to another that looks clearer. Sodium sulphite is comparatively permanent, either in the solid form or in solution, if care is taken in its preservation. If the bottle that contains the solid is kept well corked, and small remainders that have been a few weeks in nearly empty bottles are rejected, there is little to fear from deterioration. A 25 per cent. solution will keep in good condition for many months if the bottles containing it are full, and closed with good corks or india-rubber stoppers. A 50 per cent. solution may be satisfactorily prepared by warming, but in cold winter weather some of the salt is liable to crystallize out.

It is important to notice that the amount of sulphite used should be proportioned to the total bulk of developer, and not to the pyro, as is often recommended. For sodium carbonate, twenty grains per ounce; for ammonia, seven or eight grains per ounce, will be found about right. If the solution darkens appreciably during development, more sulphite should be used next time, and it will darken with the quantities named if the development is unusually prolonged, or the amount of alkali added is exceptionally great.

Alkalies. Of these there is little to be said, except that they should be of good quality. "Washing soda" should not be used, as it is not pure and not uniform: the effect of the same weight at different times will therefore vary. Crystallized sodium carbonate that is practically pure is easily obtainable. One ounce dissolved and made up to nine fluidounces will give 10 per cent. solutions, and these are convenient. Of ammonia, one fluidounce of the strongest should be diluted up to ten fluidounces for use.

Other chemicals do not call for special remark except that they should be obtained from a reputable firm that they may be of reliable quality. 10 per cent. solutions are convenient.

Pyro-soda. Cautious Development. The method of development that we recommend when dealing with large or important plates, is to so arrange that development is slow, requiring from about fifteen, twenty or even thirty minutes for its completion. If one is judging density by inspection, there is then plenty of time to observe it, and the image does not grow too dense during the rinsing before fixing. If the "time" method is preferred, the times to be observed are appreciable, and an error of a few seconds or even a minute is hardly noticeable. If the developer does not cover the plate quite evenly at first, there is time to remedy the irregularity before it has produced a perceptible effect; and there are other advantages of comparatively slow development that need not be enumerated. Take of

	Solids.	Solutions before recommended.
Pyrogallic Acid . .	2 grains.	
Sodium Sulphite (cryst.)	20 grains.	80 minims.
Potassium Bromide . .	½ grain.	5 minims.
Sodium Carbonate (cryst.)	6 grains.	60 minims.
Water, add to total bulk of	. .	1 ounce.

The quantities given are multiplied by the number of ounces required. This, as all other similar solutions containing pyrogallic acid, will become brownish by exposure to the air more quickly if more water is added to it than when undiluted. If, therefore, it is desired to dilute it, more sulphite should be added so that the proportion of approximately twenty grains to the ounce is maintained.

Pyro-soda. Rapid Development. The professional portrait photographer and the hand-camera worker who has many plates to develop, all of a somewhat similar character, requires a more rapid method of work than that just described. There is a little more chance of error, but with practice only a little, and this is worth incurring for the sake of the time saved. To quicken development, increase the alkali to about four times, and as this will tend to make the developer dark more quickly by exposure to the air, the sulphite may be increased a little. The pyro also may be increased or the negatives will tend perhaps to be too soft.

	Solids.	Solutions before recommended.
Pyrogallic Acid . .	3 grains.	
Sodium Sulphite (cryst.)	25 grains.	100 minims.
Potassium Bromide .	½ grain.	5 minims.
Sodium Carbonate (cryst.)	24 grains.	4 drams.
Water, add to total bulk of	. .	1 ounce.

This will serve as a type of pyro-soda developer generally recommended by plate-makers, and will be found to give excellent results.

Those who prefer to have two solutions already prepared to be mixed in equal bulks for use may make them up according to the following formula:

A.		
Pyrogallic Acid . .	1 ounce.	40 grains.
Sodium Sulphite (cryst.)	9 ounces.	
Potassium Metabisulphite	48 grains.	
Water to . . .	80 ounces.	
B.		
Sodium Carbonate (cryst.)	9 ounces.	
Potassium Bromide .	80 grains.	
Water to . . .	80 ounces.	

Equal parts of A and B to be mixed for use. This is very similar to the preceding formula, the potassium metabisulphite being introduced to preserve the pyrogallic acid better. Eighty ounces is the capacity of a "Winchester quart," and therefore a convenient bulk to prepare.

Other Alkalies. Potassium carbonate is now rarely used, because it does not appear to have any advantage over sodium carbonate, and it is more costly and not so easy to obtain and keep in good condition. Moreover it appears to soften the gelatine more than the sodium salt. If used, the whole or part of the sodium carbonate may be replaced by about half its weight, or rather less, of potassium carbonate.

Ammonia also is not often used, because it is less certain in its action than sodium carbonate; it volatilizes, and its solutions therefore lose strength, and it tends to stain, presumably because it is a solvent (though a poor one) of silver bromide. It may replace the sodium carbonate, using from one to four minims of the strongest ammonia (ten to forty minims when diluted to one in ten) to each ounce of developer, reducing the sodium sulphite, as already stated, to about one-third of the amount.

Edwards' Redeveloper. Mr. B. J. Edwards many years ago suggested the use of a very highly restrained developer in cases of overexposure, to take the place of the normal developer as soon as the overexposure was manifest by the image flashing up. By using exposure meters, such treatment should never be necessary, but it may be useful to give the formula, and it serves also to indicate the maximum amounts of the various ingredients that are practically serviceable:

A.

Pyrogallic Acid	1 ounce.
Sodium Metabisulphite	1 ounce.
Water to	28 ounces.

B.

Sodium Carbonate (cryst.)	9 ounces.
Potassium Bromide	2 ounces.
Water to	28 ounces.

For use, mix equal bulks of A and B. The solution ready for use contains:

Pyrogallic Acid	8 grains.
Sodium Metabisulphite	8 grains.
Potassium Bromide	16 grains.
Sodium Carbonate (cryst.)	72 grains.
Water to	1 ounce.

This solution is so highly restrained that it will hardly develop detail, but it will allow the development of the image that has already appeared to continue. The eight grains of metabisulphite may be replaced by about thirty grains of the ordinary sodium sulphite if it is not desired to keep the solution before use.

Other Variations. The formulæ already given may be regarded as typical, and are susceptible of variation in many ways. Indeed, one of the chief advantages that pyrogallic acid has over some other developing agents is its adaptability to various conditions. It is not unusual to omit the bromide, but this must be done with discretion. With no bromide some plates will require less exposure, but probably the difference has been rather exaggerated. The fact that a plate will develop clean without bromide added to the developer is not a sure sign of the superior quality of the plate, because there may be some alkaline bromide in the film. And immediately development commences, alkaline bromide is formed and dissolved in the developer, and it increases in quantity as development proceeds.

Acetone may be used instead of alkali, its reaction with the sodium sulphite providing the required alkali as it is needed. It is recommended to dissolve one part of pyrogallic acid and ten parts of crystallized sodium sulphite in 100 parts of water, and to add acetone as required up to ten parts. The action of this developer is similar to that of pyro-soda.

Tribasic sodium phosphate to the extent of from eight to twelve grains per ounce may be used instead of other alkali, but its advantage is not particularly obvious.

Lantern Slides. Pyrogallic acid is particularly suitable for the development of lantern slides. An excellent formula is due to Messrs. Thomas & Co.:

Pyrogallic Acid	1 ounce.
Sodium Sulphite (cryst.)	3 ounces.
Citric Acid	¼ ounce.
Water to	10 ounces

Ten per cent. solutions of ammonium bromide and of ammonia are also required. A mixture of thirty minims of each of these three solutions, diluted to two ounces, gives a developer that will produce a black or a warm black according to the exposure. By further increasing the exposure, and also the bromide, the color of the image becomes a warmer brown. Mr. John A. Hodges recommends as a useful developer for a pleasing warm color the following formula:

Pyrogallic Acid	1 grain.
Sodium Sulphite (cryst.)	12 grains.
Citric Acid	1 grain.
Ammonium Bromide	¾ grain.
Water to	1 ounce.

with as much ammonia added as will cause development to start in one minute and finish in ten.

Bromide Paper. Pyro-acetone gives with many brands of bromide paper very agreeable brown colors. Messrs. Cadett

and Neall have published the following formula:

A.

Pyrogallic Acid	22 grains	or	50 grams.
Sodium Sulphite	130 grains	"	300 grams.
Sulphuric Acid	3 minims	"	6 c.c.
Water to	1 ounce	"	4000 c.c.

B.

Acetone	1 volume.
Water to make	20 volumes.

Use equal measures of A and B. The color may be further modified by increasing the acetone.

Fixing and Washing. As solutions of pyrogallic acid containing a sulphite darken more readily on exposure to the air when diluted, because the dilution reduces the proportion of sulphite, it is not advisable to wash much after development and before fixing. Pyrogallic acid is not exceptional in this, for the same principle applies to other alkaline developers. The plate may be just rinsed to remove adherent solutions from its surface, and at once put into the fixing bath. The writer distinctly prefers an alkaline fixing bath containing sodium sulphite.

Sodium Hyposulphite	1 pound.
Sodium Sulphite	1 ounce.
Sodium Carbonate	¼ ounce.
Water to	80 ounces.

This not only fixes but washes out the remainder of the developer without allowing it to stain the plate. It must not be supposed that such procedure is *necessary* to prevent staining, but while fixing thoroughly and calling for no extra trouble or attention, it makes staining still less possible than the method more usually prescribed. After fixing the plate should be thoroughly washed.

PLATINUM PRINTING, BRONZING AND OTHER HOT-WEATHER DIFFICULTIES.

BY A. J. JARMAN.

THE making of platinum prints during the summer season is almost always attended with more or less trouble, especially in and near the seaport cities and towns of North America.

These difficulties are not entirely due to the high temperature, but arise in a great measure from the excess of moisture contained in the atmosphere. This moisture, aided by the high temperature, causes the ferric salts employed in the preparing of platinum paper to become very active, and tend to produce other salts of iron by oxidation. This action is the main cause of the yellowing of the whites of platinum prints. Bronzing occurs principally through overexposure, causing an excess of ferrous salt to be formed from the ferric salts upon the paper, while this excess of ferrous salt in turn causes an excess of platinum to be deposited when brought into contact with a free oxalate, which is always contained in a platinum developer. The high temperature aids rapid development, and consequently results in excessive bronzing. This effect of bronzing is produced only with papers containing the iron salts in excess, as well as the platinum salts in combination therewith, because bronzing never occurs unless there is an excess of platinum deposited, and this, too, when deposited very rapidly, the rate of deposition having something to do in producing the bronzing effect. Such papers as the above are capable of producing the very finest results, because there is a sufficiency of both the salts of iron and platinum to give the required deposit before the sensitive surface becomes washed off the paper.

It is very remarkable that prints produced by the hot bath process, which process preceded the cold development process at present largely in use, showed very little tendency to bronzing. The black deposit in this case was intensely black, while a print that was overexposed became grayed all over, so that it was quite useless. This result was due, without doubt, to the sensitive surface being prepared quite differently to the present cold development paper and to the use of a perfectly neutral solution of potassium oxalate as a developing agent. Much

greater care had to be bestowed upon the use of platinum paper for hot development than is exercised to-day in the use of paper for cold development. Every print had to be placed in a specially made tin case charged with dry calcium chloride, in a receptacle fitted beneath a perforated plate, which formed the bottom of the tin case, upon which the exposed prints were placed and kept as near air-tight as possible until the time for development arrived. Many photographers to-day employ simply a plain solution of potassium oxalate to develop prints that are made upon the present paper for cold development, and by this means very often get inferior results. This is because the potassium oxalate used varies in quality. If it is in the least alkaline the full values contained in the negative are lost in the print. An acid developer is best suited for cold development, restrained by the addition of either potassium phosphate or sodium phosphate, it matters not which, if the salts are mixed and the developer made up at once with hot water. If sodium phosphate is mixed with potassium oxalate and kept some time before use, the combination becomes moist and forms a conglomerate mass. This, however, is no detriment when made up into a developing solution. This moistening of the salts does not take place when the potassium phosphate is used. When making up a developing solution for cold development the salts should always be dissolved in boiling water, so as to secure a more perfect combination, the resultant solution being filtered for use as soon as it becomes cold.

The best way to make up a platinum developer is to employ a stoneware crock of any kind, with a lid. The salts may be placed therein and the necessary quantity of boiling water poured upon them from a tea-kettle, stirring the whole with a clean glass strip. An excellent developer for black platinum prints can be made as follows:

Potassium Oxalate . . .	6 ounces.
Sodium Phosphate . . .	1½ ounces.
Oxalic Acid (c. p.) . . .	½ ounce.

Place these in a stoneware crock, then pour upon them fifty ounces of boiling water. Stir well, then allow to cool, when it is ready for use.

In the process of platinum printing there are sure to be some prints that have been overdone, or, as is usually termed by platinum printers, "cooked too much." It is with this class of print that this article is intended to deal. Generally such a print is torn in halves in the printing frame and thrown away or cast into the waste-box. If such prints are only overprinted they would not make a good picture under the usual method of development, they may be saved and excellent pictures made by developing them in a specially prepared developer. It is this class of print that yields the objectionable bronzing in the shadows, and is so often thrown out as being unfit for delivery. This occurs only too often with very large platinum prints, such as 11 x 14 and 20 x 24, which, owing to the high cost of the paper, becomes a serious loss to the photographer. All such prints as these should be placed in a separate box or receptacle until the time for development has arrived. Then have prepared and ready at hand a developer made up according to the following formula, which, after being prepared and allowed to become quite cool, filter twice through absorbent cotton, being particular at the same time that the glass funnel and the bottle or bottles into which it is filtered are perfectly clean:

Potassium Oxalate . . .	8 ounces.
Potassium Phosphate . .	2 ounces.
Oxalic Acid (c. p.) . . .	1 ounce.
Chloride of Potassium (c. p.) .	2 ounces.
Boiling Water	60 ounces.

Stir well, allow to cool down for half an hour, then add glycerine, 8 ounces. Stir well until all are thoroughly mixed. Allow this to become quite cold before use. Employ a separate tray for this developer, and place a small lump of ice in it a short time before use. Take one of the overdone prints and pass it through the developer in the usual way. It will be seen to come up very even. As soon as development has been carried to the necessary point place it at once in the acid-clearing solution, 1 part muriatic acid to 60 of water, the same as is usually employed. After a few minutes remove the print and examine it, when it will be found to be perfect in every particular, with a full color, inclining to blue-black. Of course,

if the print has been hopelessly overprinted, then it must be discarded, but for prints that are somewhat overprinted and would otherwise be completely spoiled and bronzed in under the usual method of development, all and every such print can be saved and turned to profitable account by the employment of the above developer. This solution can be used over and over again, the same as an ordinary developer, taking care to filter each time before use, and adding a little clean new developer each time.

In the formula given for the first developer as much as one ounce of oxalic acid may be used, for by the use of this chemical in moderate quantity the whites are kept very clear. This is brought about by the dissolution in the developer of the traces of the lower oxides of iron formed by damp and heat, so that by keeping the whites brilliant and clear the blacks appear to be more black. More than this, a strongly acidified developer, like those of green hue, clears away the very cause of the yellowing of the whites of platinum pictures. It may be taken as an axiom that the thicker or heavier the paper is the longer it must remain in the acid clearing solutions, so as to clear out every trace of the iron salts. The writer had considerable trouble some six years ago in keeping the whites brilliant when using a very heavy platinum paper, but succeeded in getting over it by leaving the prints in a fourth acid clearing bath overnight, washing them the next day. Under this treatment the whites were found to be all that could be desired. This proves that "time" is necessary to clear out the iron salts absorbed by a heavy paper. As to the clearing solution of muriatic acid or, more correctly, "hydrochloric acid," this solution is almost universally used. There are other clearing solutions, that which was employed originally was oxalic acid, and of the two is superior to hydrochloric acid. The drawback to its use is its great danger of poisoning the fingers by absorption, its tendency to become lodged under the finger-nails and around the quick, producing intense pain, throbbing, and eventually a small fester. An excellent plan to adopt after the hands have been dipped for some time in an oxalate developer is to rinse them well in clean water, using no soap, then rub the hands well with lime-water. The lime neutralizes the oxalate, and thus prevents the chance of poisoning.

The introduction of chloride of calcium and chloride of sodium into the clearing solutions has a very marked effect in preserving the whites of the picture. The following clearing solutions for use during the hot weather are very effective and certain in their action:

Sulphuric Acid (c. p.) . .	2 ounces.
Water, Cold	120 ounces.
Chloride of Sodium (Common Salt)	2 ounces.

Pour the acid into the water, rinse out the graduate, place the salt in the tray, stir until it is dissolved, and mix. As soon as the print is developed place it in this bath. The iron salts become quickly dissolved out, in fact, this mixture produces hydrochloric acid in its *nascent* state. This appears to account for its decided action in the clearing, because all bodies become more active when in the nascent condition or, in other words, when in their highest active state. Another excellent clearing bath the writer has employed with perfect results is made up as follows:

Hydrochloric Acid (c. p.) .	2 ounces.
Water	120 ounces.
Chloride of Calcium . .	2 ounces.

The chloride of zinc and magnesium do not give the same results, the chloride of zinc having a tendency to make the hands sore, but the chloride of calcium acid bath is very good.

Sometimes it occurs in the process of ordinary development that a print otherwise good is too black and undefined in the shadows, although it has not reached the stage of bronzing. The print may be a valuable one, and wanted in a hurry, at the same time, owing to bad weather, there is not an opportunity to make another print. As every photographer is not equipped with an electric-light printing plant, it may prove both profitable and advantageous to save such a print. This can be accomplished in a very simple manner. The question has often been asked, and is still asked, "Can an overdeveloped platinum print be reduced?" It can be reduced, and accomplished very effectually,

not by chemical means, for it is impossible to dissolve platinum by any chemical agency when deposited upon paper without destroying the support. But the reduction can be made mechanically, and in a very simple way, especially if the print has not been allowed to dry from the time it has been developed, cleared and washed. The paper is then very pliable, and the platinum image is held by slight tenacity to the surface. If the print has been allowed to become dry it must be well wetted and allowed to soak for some time, say an hour, before reduction is attempted.

The following utensils and materials will be required: A nickel-plated or tin coffee-pot, with the handle attached to the side. This kind of a pot is better handled and the operation of reduction more easily watched than where a coffee-pot of the usual kind is employed. One 11 x 14 or 14 x 17 deep papier-mache tray; one quart of boxwood sawdust or fine sawdust from white wood (*i. e.*), willow, the boxwood dust being the best. It can be procured at any watchmaker's material supply house or from those who supply material for electro-platers and gilders. This kind of sawdust contains no resinous matter. Place the print to be operated upon, after being thoroughly wetted, in a sloping position upon a clean, smooth board covered with white oilcloth, or upon a clean sheet of glass, clipped at the two top corners with clean wood clips. Pour a pint of the sawdust into a half-gallon wide-mouthed bottle. Add thereto about three pints of clean cold water, shake it up well, then pour it into the coffee-pot. Now proceed to pour the water and sawdust upon the part to be reduced, and carefully watch the operation, because in a very short time the platinum will commence to wash off the paper. The continued pelting of the little crisp pieces of wood dust removes the excess of deposited platinum by abrasion, the result being that the heavy shadows soon begin to lighten up. In fact, if a very dark print be taken and carefully treated all over the effect produced is like a beautiful engraving. When the operation is finished it becomes difficult to believe that the resultant picture is a platinum photograph, except to those who know how it was produced. The use of sawdust and water was advocated some years ago for the development of a special kind of carbon print, but it fell into disuse, because it was a long and tedious operation. Such, however, is not the case when employed for the reduction of a platinum print that is too dense.

If a sepia platinum print be made and printed a little more deep than suited for the usual class of portrait, then treated as described, the effect is very charming, particularly if the print is a copy of an old oil painting. Head and bust portraits from life treated in this way possess a very desirable quality because of the genuine stipple effect aimed at by the use of a somewhat coarse-grained paper. Views and landscapes treated by this method produce effects that are not equalled by any other process except by beautiful engraving. The writer is not aware that this method of reducing the overdensity of a platinum print has ever been brought into use. It will prove to be both a new and novel power in the hands of the skilled photographer. It could no doubt be applied to other photographic prints, but the object here is to point out its use in a direction where it has already proved its value, where it might be the means of creating a new and separate class of portrait, enabling the photographer to produce a special portrait of a remunerative character, and forming a special feature of attraction to his studio.

The production of platinum images upon porcelain or opal glass is not an impossibility. They have already been made, both in blue-black and brown-black, and may before long become a commercial article. The results, with such pure whites as that of a porcelain or opal base for the high lights, leave nothing to be desired in the way of black and white when applied to portraiture. Platinum opals will become an accomplished fact as well as carbon opals. With a glass or porcelain base the reduction of a platinum image can be easily accomplished by chemical means, and can be strengthened by alternate toning with gold and platinum.

The sawdust reducing mixture can be saved for future use. The best plan to adopt is to wash the sawdust well, then wring it as dry as possible in cheese-cloth,

and lay it out upon blotting paper to become quite dry. Another point may be mentioned here. In an overdense platinum print, especially one made during the hot weather, the whites are very apt to become slightly grayed. This grayness is easily removed by the sawdust and water reducer, so that the process becomes doubly valuable. With the smaller sized platinum prints that are produced upon smooth paper, and where it is so often desired to give them a semi-gloss, so as to make the shadows more transparent, this may also be readily accomplished with a surface that is quite water-proof, one that not even mild acids or alkalies will affect. To accomplish this the prints must be well washed and dried in blotters, so as to lie quite flat. This is best done by first draining the water well from the prints, then blotting them off between clean white blotters. After this is done place the prints in another set of clean dry blotters upon a very level board or sheet of thick plate glass. Place several blotters at the bottom, if glass be used; thus with two blotters between each set of prints place a level piece of board upon the top and submit them to considerable pressure for the night. The next day the prints may be removed, that is if they are quite dry. Procure a glass dipping bath, such as is used for the wet collodion process. Fill it nearly to the top with the following: Albaline, 1 part; thinner, 1 part. Take the prints one by one, dip them completely in the mixture, hold the print up to drain by one corner, then clip it at each corner with two wood clips, and suspend it to dry away from dust. (The prints should not be trimmed until after this operation.) When dry, trim prints to size and prepare to mount with a good strong paste, by rubbing it well across the back of the print. Perform this operation thoroughly, then mount as desired, taking care to hold the blotter that covers the surface of the picture with the left hand, while applying the roller with the right, so as to prevent the picture from slipping. Roll down well, wipe off any excess of paste with a damp sponge, cover with clean blotter, then place under pressure until dry. When dry, remove the prints, flatten them out by passing them through a rolling press, when it will be observed that the shadows are very transparent, the whole picture presenting the surface of an artisto-platino with intense blacks. It will be found that prints tested in this manner are about as water-proof as it is possible to make a paper print, and that on the whole it approaches the effect that is observed when a platinum print is wet. This will no doubt meet the requirements of many photographers who have desired such a result.

The precise effect of a platinum print as seen in water can be produced in a dry state, a method for accomplishing it will be described in a future article in this MAGAZINE.

THE BACKGROUND.

MR. A. H. HEWITT, in a series of articles in *Photography*, under the general title of "Practical Professional Photography," is giving some very sound practical advice and instruction to the professional worker. The following article on "The Background" is reprinted from the issue of June 4, 1904.—[ED. W. P. M.]

Mention was made in the last chapter of the background as a means of accentuating or softening the force of lines. It has a great influence on the pictorial effect of a portrait, and deserves to be studied more carefully than is usual.

One of the commonest defects the ordinary photograph shows is the force of outline of the figure against the background. A good general rule to observe in this matter is that the figure should always merge into the background at some part, and generally in more places than one. Only in this way can the background and figure be made parts of one scheme of light and shade. The difficulty of getting the light and shade of the background to properly relieve the figure is one that frequently occurs, but for half-lengths and head and shoulder portraits it may be practically overcome by employing a

number of grounds slightly varied. In his "Treatise on Painting" Leonardo de Vinci says: "I would have the painter to accommodate that part which is enlightened so as to terminate upon something dark, and to manage the dark parts so that they may terminate on a light ground," and in another place, "The ground which surrounds the figures in any painting ought to be darker than the light part of those figures and lighter than the shadowed part." This method will give the maximum of relief, and, of course, great force and vigor to a portrait, but it is quite evident Leonardo meant it to be used with discretion, for in another chapter he says, "A face placed in the dark part of a room acquires great additional grace by means of light and shadow. The shadowed part of the face blends with the darkness of the ground, and the light part receives an increase of brightness from the open air, the shadows on this side becoming almost insensible, and from this augmentation of light and shadow the face has much relief, and acquires great beauty."

Sir Joshua Reynolds advocated this relieving of dark with dark and light with light in one of his "Discourses." Sir Joshua, however, adopted both methods, and doubtless selected that most appropriate to the subject of his portrait.

This appropriateness or "fitness" is, in fact, an important matter often lost sight of. Not alone in choice of background and force of light and shade generally should discrimination be shown between portraits of men and those of ladies and children, but accessories and occupation require thought. The observant operator finds out what interests the sitter, and so secures fitness, or no incongruity of pose, expression, or occupation, at least this must be so if portraits are to be produced expressing individuality. A footnote to Leonardo's instructions as to representing children, old men, old women, and so on says: "The author here speaks of unpolished nature; and, indeed, it is from such subjects only that the genuine and characteristic operations of nature are to be learnt. It is the effect of education to correct the natural peculiarities and defects, and, by so doing, to assimilate one person to the rest of the world." The tendency in commercial photography is to eliminate "the natural peculiarities and defects," and though one aims at a little idealism, care should be taken to avoid reducing all portraits to a "dead level of commonplace excellence," as H. P. Robinson phrased it.

The influence of the background on exposure has been repeatedly mentioned by Mr. Harold Baker, but it may be well to note the points to which he has called attention. In general a shorter exposure may be given, say, for a head and shoulders portrait when using a dark background than when a light-gray vignette ground is employed. The difference is sometimes as much as between one and three seconds. All the lights in the face are accentuated by the dark ground, and care should be taken not to carry such exposures too far in development, or a hard, chalky effect is produced.

Having considered the arrangement of the lines in the picture, and the disposition or scheme of light and shade, we are still left with the question of focusing or the sharpness or softness of definition.

We have seen that the lighting may be so managed as to emphasize or subdue certain parts of the subject, but it will be evident that a diffused or softened outline will be much less insistent than one which is sharp and clean-cut. Certain parts of the picture call for a sharp rendering; others of less importance may be less sharp.

As a general rule, for the best pictorial effect, nothing should be really quite sharp except the eyes, but it will be found in the case of commercial work that a more general crispness is demanded. It is, moreover, almost impossible when working with the usual portrait lens, or with anastigmats, aplanats, or rectilinears, even at large apertures, to keep everything except the face softened in definition. Wherever any part of the subject is in the same plane there will be equal definition. In fact, the ability to arrange the figure suitably with regard to that particular plane which the lens is defining is one of the earliest difficulties met with in portraiture.

The more nearly important parts of the figure can be placed in the one plane, so

that they may be in focus at the same time and with the plate in its normal position, that is at right angles to the principal axis of the lens, the more accurate will be the proportions of the various parts of the picture. The hands will be proportionate to the size of the face and so on.

The swingback may sometimes be used to get parts of the figure into focus that are in another plane from that of the face, but when this is done inaccuracies of scale are at once introduced. It will be apparent that if the head is, let us say, fifteen feet from the lens and is sharply focused, and if the hands are thirteen feet six from the lens, and are sharp at the same time, they will be represented on a slightly larger scale than the face, just as a print which is being copied is brought nearer to the copying lens when we wish it rather larger on the focusing screen. If the hands are not sharp, however, owing to insufficient depth in the large aperture lens, and we employ the swingback to make them so, the scale is still further increased, because the focusing screen is moved farther from the lens, and the rays forming the image of the hands diverge still farther before reaching the screen. This is the case with any lens used for every-day practical work in the studio, but when lenses of too short focal length are employed the fault exists in its worst form.

I have not seen this point emphasized or even mentioned in any articles on portraiture, but it appears to me an important one, and a frequent cause of the complaint that "the hands are too large." It is one, of course, with which anyone who has studied the optical properties of lenses is quite familiar in theory.

Harold Baker recommends the employment of the side swing as a means of getting the shoulders in focus, presumably when the figure is turned to a three-quarter position. The swinging of the back in any direction in taking portraits seems to me undesirable and likely to produce distortion. The following simple experiment may be tried: Place the camera on a copying board and adjust on the perpendicular easel a perfectly rectangular piece of white board, such as a cabinet mount. Now, with the swingback vertical sharply focus this, and then swing the back, either vertically or sideways. The image of the rectangular mount will be no longer true, but wider across one end or one side, according to the way the back was swung. This can be measured, and what occurs with the mount must equally occur with the sitter.

Apart from the sharpness of the picture there is to be considered the amount of detail which we wish to render. This, of course, depends principally on the lighting, and to some extent on the surface of the paper on which we propose printing, but it is affected also by the length of the exposure. A short exposure will tend to subdue shadow details and to emphasize the gradations of the high lights. On the other hand, a longer exposure will give a softer result, and the shadows will be more broken up. It is not desirable to shorten the exposure to such an extent as to produce shadows devoid of detail. Such a course tends to give heavy shadows with no transparency or depth.

The exposure demanded to a considerable extent will depend on the subject. Thus two sitters may be taken in rapid succession with an unaltered light, yet the exposure in the one case may be two or three times that in the other. In one case we may have a lady in a white dress in front of a moderately dark ground. Full strength of detail in the background is not necessary, but sparkle and good gradation are wanted in the dress. The exposure given may be a trifle more than the dress demands, but not so full as to flatten the high lights of the draperies, care of course being taken not to develop to too great density. Iu the second case, with a sitter in a large black hat and black velvet dress, a much fuller exposure will be needed, because strength of detail will be expected in what are essential parts of the picture.

Photographers' Association of Oklahoma and Indian Territory. The fifth annual convention of this association is listed for September 13th, 14th, and 15th, the place of meeting being in Oklahoma City. Instructive papers, addresses, and demonstrations are being arranged for. The interstate class is open to allcomers who care to submit six portraits ten inches or larger; valuable Indian trophy.

STUDIO ADVERTISING.

BY W. I. SCANDLIN.

XII. SOME CLOSING ARGUMENTS.

THE experience of the writer during the past few years, in which time he has been in close touch with photographic studios from Maine to California and from Canada to Texas, indicates that there are two main reasons that largely account for the apparent apathy of the average photographer to any effort to increase the output of his business through the channels of publicity.

The first may be said to be the tradition of the profession, and the second that close attention to detail of the studio work, which precludes the possibility of any broad view of general conditions outside the darkroom, and the consequent unfamiliarity of the practical photographer with the use of pen, ink, and grammatical construction. In the matter of tradition, it has been the custom from time immemorial for the professional photographer to announce his studio through the means of a conventional showcase at its entrance and to provide access thereto by means of a more or less dismal, dirty, and tortuous stairway. On entering the sacred precincts a dusty collection of specimen prints, some less faded and soiled than others, but only differing from the worst in the matter of degree, have always been in evidence. These conditions existed not in any one locality more than in others, but were for a long time almost universal. It is only in recent years that any deviations have been made from this old-established custom. It would be interesting could we trace to its beginnings the renovation that is fast spreading over the country. One thing is sure, however, and that is that from the moment the above conditions began to disappear, from that moment also dates the beginning of a greater prosperity for the studio. The studio that is to-day catering to the best class of patrons and doing the best business in any community is that one in which the greatest regard is paid to the little things that go to make up the sum total of comfort and convenience for its patrons. Studios of this kind are known as progressive studios and are pervaded by an atmosphere of prosperity throughout. A point to be noted in this connection is not that a better class of patrons makes necessary and possible better facilities for handling them, but rather that improved conditions in and about the studio attract to it the better class of the community. The initial move must be made by the photographer every time.

The beginning of the present improved conditions of photography with its tremendous field of possibilities opening up in all directions, dates back to the man who first kept his showcase in good condition, his samples fresh and his stairway clean. That man realized that these things were necessary to the conduct of a business in which ladies and children were the chief patrons. His business instinct may have been superior to his technical skill, but it is more than probable that his business showed a better profit after than before the change. It is highly probable that his name appeared among the list of successful competitors in his State conventions, and that the medal which he won was used for many years as the basis of a campaign of publicity that did him a world of good. It is further likely that this man followed his first method up by others equally business-like, and if he did he is to-day a judicious advertiser and a prosperous photographer. There are such in the land, and in this connection the writer is reminded of a statement lately made by one of the leading photographic editors of this country, Mr. F. Dundas Todd, which has a very pertinent bearing upon the point at issue. Mr. Todd made the statement in open convention, at the same time challenging contradiction, that according to his best judgment, less than 25 per cent. of the professional photographers of this country are in receipt of an annual income from their business amounting to $500. If this is true, or even approximately correct, it clearly establishes the theory that the progressive photographer, the man of modern ideas and up-to-date business methods, and that man alone, is

likely to achieve success and to acquire prosperity in his business. If we assume the total number of photographers in this country to be 10,000, we shall, under Mr. Todd's interpretation have 2500 deriving an income of $500 or more from their business annually. We shall also have 7500 whose annual income amounts to less than that sum. If, then, the estimate is true, or even approximately so, it offers food for very careful study and reflection.

One of the first things that suggest themselves is that we may, any one of us, instantly name a number of individual cases within our own knowledge belonging without question to the more prosperous class, and we find that they are not restricted to any one locality, nor are they confined to the larger cities or towns. Many cases may be cited where men in communities of from 5000 to 10,000 population are building up profitable photographic businesses. There is, however, one characteristic that is common to them all—whether in town or city—whether turning out cabinets at $3.00 per dozen, or 8 x 10 prints, at $5.00 each: they are each and all and every one of them progressive men with an eye to the business end of the studio all the time. They know the value of the right kind of publicity and do not hesitate to use it. It is not merely a coincidence that most of these men have been, or still are, more or less active in the work of their State or National Associations. This very activity is the best proof of their progressive spirit, and through it they keep in touch with all that is going on about them.

A study of the history of our craft would reveal many instances where men of long standing in the profession, whose lives had for years been merely a struggle for existence, have found at their very first convention attendance an awakening to new and undreamed-of possibilities from which to-day they are reaping profitable returns. Therefore, it is I claim that if Mr. Todd's statement holds water at all, his 25 per cent. or less who derive more than $500 per year from the photographic business will be found to correspond very closely to the total past and present membership in National and State Associations.

The writer's experience seems to demonstrate that as a rule association membership and convention attendance mark the first step in the making of many successful photographers. From the moment of their return their studios assume a different aspect. Better business methods begin to frame themselves, and, almost before they realize it, results begin to become apparent. Possibly the effort required to obtain the funds necessary to defray convention expenses was great, perhaps it even involved a temporary loan, but in how many cases it has proved a profitable investment to the photographer it would be difficult to estimate. It is much the same in the beginning of a campaign of publicity. The photographer knows that a definite sum must be expended before any returns will become apparent. He naturally hesitates sometimes until the opportunity is passed or has been made use of by some other more progressive man, and the occasion may not repeat itself for another season, if, perhaps, at all. Something must be taken for granted, and the experience of prosperous firms in almost every other line of business would seem to warrant a moderate outlay for the carrying out of some thoroughly practical plan of publicity in the photographic field. If every dollar expended in other branches of the studio work could be made to promise such returns as the necessary amount in proper publicity will produce, there would be no reason to complain of any shortage or balance on the wrong side of the books at the end of a photographer's year. Stock, of course, must be bought to fill orders that may come into the studio, help must be paid, whether it is kept profitably busy or not, rent for the studio must of course be met with heart-breaking regularity, but the few dollars necessary to start a modest campaign of publicity where it will in the shortest possible time produce the best available results is a matter that the man who has never tried it is fearful of undertaking. When, however, these men begin to probe the methods of their neighbors and to acquire an insight into the means by which they became more successful than of yore, they find almost without exception, that some definite business policy has been adopted, and that the work of the studio is carried out on some definite plan

or scheme which has for its base a desire, intention and positive action toward the acquirement of new business and an increase of the old. The particular manner in which this method is worked out varies in different localities, and is wholly a matter of personal preference. All the preceding is evolved with more or less directness from the old traditional conditions surrounding our profession for more than fifty years. As these traditions are lived out and the newer, broader field of photography is entered into with all its possibilities of commercial and artistic advancement and usefulness, there should be found a way by which it may be made more profitable. When found the writer believes it will be through the portal of judicious publicity, by aid of which the possibilities of the craft may be laid before the public in such a manner as to carry a convincing argument for their greater employment and more universal application.

The second reason that militates against the photographer's best interest in the widening of his field of work referred to in the beginning of this article is a more or less complex one. To the man who has even a limited number of sittings to make and negatives to develop each day and the work of the studio to supervise, it is no easy matter to take pen and paper and get down to literary work. The detail work of the skylight and dark-room unfit him both physically and mentally for effort of this kind, and he gives it up as an utter impossibility.

It does not follow, however, that because he cannot do it himself it does not require to be done at all. In every other department of his work he hires assistants, and he may do so in this. There are plenty to whom he may go, fitted by education, training and experience to help him—men who can prepare a practical formula for the development of an undertimed field of publicity as quickly and as surely as the photographer can prepare his toning bath. The public is ready to be approached in the interests of good photography. The field is almost the only one that has not already been persistently worked. Few fields offer better opportunities for the presentation of logical argument and forceful statement, and none better material for dainty, exquisite, and attractive illustrative matter. Good publicity is the best demonstration to be found in the business world to-day of a progressive firm. Is there any reason why it should not equally apply to the photographic studio? It is the only method by which the business of the studio may be extended. Its importance is daily becoming better known and appreciated, and its use in town and city studios is rapidly increasing. The question that is now being asked by thinking men is not, shall I advertise, but *how* shall I do it?

WHAT MAKES A PICTURE UNFIT FOR PUBLICATION?

THE following letter and extract referred to open up a question that has long demanded an answer, and one which, with the increasing use of photography in all sorts and kinds of advertising matter, is becoming more important every day. We gladly give place to the matter in the columns of this journal, believing it to be in the interest of all that is best in photography.—[ED. W. P. M.]

Editor WILSON'S PHOTOGRAPHIC MAGAZINE:

DEAR SIR: The increasing use of semi-draped and nude figures in the illustration of advertisements, booklets, and other publicity matter brings up a point which is of practical interest to photographers everywhere. The question, What makes a photograph unfit for publication? is not always easily decided; but upon its decision often a lawsuit or trouble may depend. In *The Inland Printer* for June, Mr. Stephen H. Horgan, the art editor of the New York *Tribune*, answers this question so tersely and so much to the point, that I enclose herewith a copy of the note referred to from *The Inland Printer* as worthy of republication in your pages. If it serves to keep some photographer out of trouble it will serve its end.

Yours faithfully,

JOHN A. TENNANT.

The editor of this department was called upon recently to settle a dispute between an advertising manager and the editor of a metropolitan newspaper. The question was as to the fitness for publication in half-

tone of a photograph supposed to advertise a corset. The picture was of a most voluptuous-looking woman, photographed in her boudoir, wearing the corset over a specially short petticoat, while her maid was presumably fastening her slipper. A special effort had been made in the woman's pose to make her anatomy from the bottom of the petticoat down the conspicuous feature of the picture. When I decided against the reproduction of the photograph the advertising manager became furious. He demanded to know what was the rule that decided the unfitness of a picture for publication. Pictures, he said, were printed of South African women and other aborigines almost nude, chorus girls, acrobats, trapeze performers in tights; bathers in all manner of poses were printed. Then why object to this corseted woman? The exact dividing line between decency and indecency is not easily drawn, still I was compelled to quickly formulate an answer to this advertising manager, and it was as follows: "Photographs of human beings in costumes or poses in which they would not appear in public are liable to be unfit for publication in an ordinary newspaper."

Will *Inland Printer* readers kindly send opinions on this reply? It is a question that engravers, advertisers, publishers and all those engaged in process work frequently meet in the photographs submitted to them, and there are an increasing number of persons without taste, good judgment or good sense in this matter. It would seem necessary to lay down some rule for them to decide between the artistic and the vulgar.

NEWS AND NOTES.

The Death of O. W. Hodges, which occurred May 20th, removes from the profession a figure long familiar to most of its votaries. Mr. Hodges had long been associated with photography, having begun his work in the old wet plate days. With the advent of dry plates, however, he was one of the advocates of the new process. For the past twenty years he had been demonstrator for the M. A. Seed Co., and in this connection has established a reputation for skill and ability that is widespread. Mr. Hodges was a man held in high esteem by all who knew him.

Photography in the U. S. Army. One of the recent developments that marks the growing importance of photography is its recognition by the U. S. Army, in which a corps of photographers has been established. Photography has, for a number of years, played an important part in connection with the movements of the army, but has only lately been officially recognized. Its importance in providing data for the engineers in mapping out a plan of campaign, or in laying out a line of march through hostile countries, can hardly be overestimated. It is more than probable that one of the early developments in this kind of photography will be the introduction of the kite or balloon in conjunction with the camera. The field presented in the army manœuvres for the practical use of the camera is boundless, and it is only a matter of surprise that it has not long ago been recognized as one of the necessary adjuncts to a campaigning army.

The forty-ninth annual exhibition of the Royal Photographic Society of Great Britain is announced to be held from September 22d to October 29th at the New Gallery, Regent Street, London, West. The exhibition will be divided into the following groups:

1. Pictorial photographs; invitation collection.
2. Pictorial photographs; competitive section.
3. Scientific and technical photography and its application to processes of reproduction.
4. General professional photographs.
5. Photographic apparatus and material.

Judges of national repute and unquestioned ability will pass upon the exhibits in the various classes. Further particulars and entry forms may be obtained by addressing the secretary, A. W. W. Bartlett, 66 Russell Square, W. C., London.

By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

THE GOLDEN WEDDING. A TOAST TO THE BRIDE OF FIFTY YEARS.

At-home Portrait. By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

By Gustave Lorey, Albany, N. Y.

PROFESSIONAL PORTRAITURE.

BY C. W. HEARN.

(Continued from page 268.)

X. HORIZONTAL BALANCE.

THE occasions in professional portraiture where special attention must needs be given to the subject of horizontal balance appear to the writer, when compared to that of vertical, to be rather infrequent. To the landscapist, however, this is a frequently occurring point, and often demands attention. In his case the attainment of this balance is greatly aided, while bending his efforts toward securing aerial perspective and atmosphere. Take a landscape, for instance, where the negative is bold, brilliant and sharp (a much desired effect with the ordinary view photographer), and in the result, especially if there be much sky, you will find a picture not only lacking in horizontal balance, but also in perspective and atmosphere. This is because the latter part of the picture is either too heavy or the mass of white in the sky is so strong as to overbalance it, while no sense of distance is felt, for the intensity and brilliancy of the negative have obliterated all delicacy of depth. The blank sky way down to the horizon also lacks interest.

THE MODERN LANDSCAPE ARTIST.

Take another similar style of landscape made by some of the more advanced of the modern workers, and you will see that the negative, and consequently the print, is altogether different. In this case, an orthochromatic, isochromatic, or similar plate on these lines has been used, and by selecting a favorable day, the sky has been photographed and noticeable atmospheric effects have been produced. The density of the plate was such that all of the fine gradations of aerial perspective were preserved which, while adding greater interest to the view, thereby enhancing its beauty, solved as above said many of the needs of a balance between the upper and lower parts of the picture. You will at once notice that in this case an artistic result may be made out of practically the same landscape.

The clouds, in a perfectly balanced picture, should, in their intensity and force, balance the *general scheme* in the lower part. This adjustment of the top and bottom of the landscape is one that requires attention to the fitness of things. When found in a large mass of sky, some clouds will tend to reduce its overpowering weight, by attraction. Do not suppose, however, that the writer is suggesting that clouds should always be present in a picture. In nature this, of course, is not the case, and artists often paint with little or no cloud effects, but good paintings will always be seen balanced in some way, even if this be the case.

Various landscapes at certain seasons of the year, and in particular localities, are frequently lighted under conditions of atmospheric effect that produce a feeling of extreme delicacy. In such cases it is very evident that anything unlike a proper presentation of the scene would be incorrect.

A FOREIGN PHOTOGRAPH OF GREAT MERIT.

One of the most exquisite photographs of this class of work that the writer ever saw, and which compared well with the best oil or water-color paintings, was a seascape made by Mr. M. W. Anselm, of Russia. It was honored by the New England Association in 1902, and formed one of the gems of the superb collection of foreign work at that convention.

The range of contrasts in this picture, as I remember it, was not more than 15 per cent. of a possible 100. The balance of light to light, light to dark, and dark to dark, were all finely preserved, and over it all was the atmospheric effect that would be expected in a picture of a graceful vessel on a beautiful sheet of water, hardly disturbed even by a ripple. One could feel the mists, the successful photographing of which was the direct cause of the beauty of the whole. We see many such scenes which always excite our admiration, and we are eager to see paintings of them too. This picture, the work of an artist who appreciated his opportunities and carried them out so successfully, gave the

writer much pleasure and a feeling of pride that it was produced by photography.

A delicately lighted landscape does not want a thunderstorm overhead, or the reverse, as some gum workers have produced. A thunderstorm may be on the way, and rightly so shown, but if it has made sufficient progress in the sky as to be especially noticeable, a corresponding shadow on the earth should show it. Those who print in skies on their prints should, as the majority probably do, take care that the upper and lower parts of the picture pull together.

Due consideration should be given to avoid dividing interest between two widely separated parts of a picture, such as the sky and the foreground. Some one thing should be the scheme that especially called the picture to be made. Avoid photographing nature when she is commonplace. It naturally follows that if it be a cloud effect, then that part of the picture should be so trimmed in the print or matted that it becomes the most important, attention being drawn to it in various ways without hesitation. The land should show only as much as is necessary to give balance and not to detract interest. The reverse of this is equally true. Another thing, do not have the horizon in the exact centre. It weakens the effect. Have it above or below, according to which part of the picture is the most important, to aid in giving prominence by the larger mass. Do not think, if you have a beautiful cloud effect, and, at the same time, something so very attractive in the foreground, that you can make your picture twice as attractive by working them both in of equal prominence. This is often done, and with sad results. Have them both in, if you wish, but subordinate one to the other, to an extent necessary to the attainment of a peaceful observation of your picture. Some sensitive natures much object to the disquietude produced in not seeing all the picture at a glance, even if they are successful in the end. Neither go to the other extreme and produce monotonous results. Have something dominate and the minor parts take their proper place. This is done by the selection of point of sight and certain other conditions that should govern you.

SOME SUGGESTIONS.

In portraiture, perhaps, a suggestion or two will serve to illustrate the manner in which horizontal balance can be obtained. This is as much by eliminating some of the more common practices in use as in any other way.

Does it appear correct to have for the foreground a dark, heavy mass, while the upper part of the picture has a very light ground? Better effect and balance may often be obtained by raising the "key" (in a measure) of the lower part of the picture to pull more with the background or by toning down the ground to produce greater harmony with the foreground? A better improvement still would be to remove the whole arrangement farther from the light, bringing all parts in tone, whereupon the marked and unpleasant contrasts would be brought nearer together.

I think it was at the Detroit Convention that Prof. Hitchcock drew attention to this particular point in a full figure of a child, whose black stockings and shoes were in the deep, strong shadow of a chair. The photograph was made upon an extension white ground. This mass so attracted the eye at a distance of a few feet that the child's beautiful face and rest of figure were not noticed. (This is an appropriate place to mention the importance of looking to small as well as larger pieces from some distance.) There is no better way to gauge our work than this, for it shows defects that would never be observed close at hand. I happened to be with Prof. Hitchcock when he selected this picture, and remember that he was some little distance away when he noticed it, later taking it to the stage for criticism.

AN INTERESTING EXPERIMENT.

Perhaps I can, to advantage, advise at this time, as well as on a future occasion, an experiment which, I trust, will be of sufficient interest and instruction to cause the reader to overlook the rather childish things suggested. Various pictorial principles will become apparent by the experiment.

Hold up vertically, by the handle, an extra-large wooden spoon, the concave side before you. Imagine the spoon,

though hollowed out, to be rectangular instead of elliptical. Now obtain a very small, full-length bisque doll (a china one would answer, but bisque is preferable) of a size proportioned to the hollow frame made by the bowl of the spoon (just as you would select some full-length picture to place in a frame that you wished to sell).

Taking hold of the bisque figure with a pair of pinchers, experiment by holding the doll at various distances and positions inside of the outer edge of the spoon. Station yourself rather away from the skylight in doing this in order to get the whole thing "in tone," that is, to lessen marked contrasts as you would pose your subject under the light. Place it close to the bowl and then a little farther away, higher up and then lower, and finally outside the edge of the spoon, all the while studying the various effects produced. The effect of light and shade and its many changes in turning the figure and spoon away from the direct light as well as toward it, and bringing it to different parts of the room will give much valuable information on light and shade, in "high" and "low key" effects of relief from and sinking in the ground, values, etc. You will also notice how to obtain tonal qualities, and to lose them just as easily by going to different parts of the room, etc.

When the doll is well back into the hollow of the spoon you will find that you can have the figure "tied" to the background and yet not glued to it in appearance, and will note also how little is the relief necessary to accomplish this.

The rotundity of the groundwork of the spoon, curving both ways, although proportionately very far in excess of what we should employ, will offer at least for our consideration a suggestion that we may well bear in mind, viz.: To obtain in our results better balance between these two extreme ends, by having them recede as they go into the picture, coming together at that point where we wish to produce the greatest distance.

AERIAL PERSPECTIVE AS AN AID IN OBTAINING HORIZONTAL BALANCE.

The method just described will give us aerial perspective in a full-length portrait of one or several figures, and, as in landscape work, this perspective will greatly assist in easily obtaining the principal of horizontal balance. Bear in mind the importance of properly lighting your foreground and the various parts of your background to obtain this distance and balance. At the same time keep in mind the fact that the figure should melt in with the ground at certain places, but not in all parts, and, perhaps, by the use of judicious unobtrusive accessories, carry out the idea that both the foreground and background are necessary to the figure, and vice versa, and that they both belong there. Successful handling will be facilitated by placing the subject and background away from the strong light, the arrangement thus being kept in tone. Avoid having the figure so lighted that one part melts into the background while another appears to be in a widely different plane of perspective. Correct handling in this particular will ordinarily show a distance of from one to two feet in the plane of perspective, while incorrect handling may exaggerate this to eight or ten feet. Let every composition be governed by correct anatomy and commonsense, avoiding extremes of pictorial principles. This is a good rock to anchor to. Professor Beck, in various lectures at the conventions, has dwelt much on the importance of this point, and has gone deeper into it than the writer has ever read or heard elsewhere. This has awakened many of us to the tremendous importance of the "stay in" qualities and the controlling influence they possess in properly expressing various characteristics of a sitter. Those who desire to become acquainted with and to perfect themselves in this matter should give due consideration to the balance of the top and lower part of the picture as well as to the extreme sides, even when it mostly refers to the matter of the ground, in front, behind, and above the sitter.

This aerial perspective not only helps in securing horizontal balance between the two extreme ends of a vertical picture or horizontal one, for that matter, but, as above noted, it plays an important part in securing the feeling that the figure is a part with the background and not detached from it. A sufficient feeling of relief is

obtained, and the solidity of the subjects is seen, without bringing them so far under the light to obtain it, that complete separation of the ground and figure results. The natural effect of thus lighting the ground to obtain the above also aids in producing the horizontal balance in the subject itself, in so far as this may be aided by the lighting alone. We do not think it necessary, after what has been said on this subject in this paper, to do more than remind the reader that while looking after the attainment of the vertical balance referred to in the June issue of this MAGAZINE, occasions may occur when the figure itself needs attention to carry out the correct horizontal balance. This, however, deals with spots or masses in various parts of the picture, that we shall attempt at a future time to explain. Equipoise is often thus obtained by some needful accessory introduced mainly for this purpose.

In horizontal pictures a single figure, or a group of two or more, a little or even considerably to one side of the centre may be vertically balanced. Yet, if we trim the print so that it may come nearer the centre to overcome the feeling that it is too heavy on that side, we may stultify the work. We might, however, have made it far more attractive and a work of greater magnitude if in the making of it we had arranged the other side so that this mass of figures had been balanced by some spot of light or equally heavy mass of dark. This, however, should in turn possess some characteristics of interest.

It does not take much to restore this balance when removed some little distance from the other side. If the weighty part of the group should be toward the lower part of the picture, even if abounding in some contracts of light and dark, it can be perfectly balanced by a small insignificant object on the other side, or several of various sizes, if not too attractive, and are a little lower in tone. This may be aided also, if found necessary, by a broad plane of light over a good portion of the other end of the ground, if the latter be not made so strong as to overdo matters. This, of course, is to be guarded against.

While speaking of these horizontal pictures, it has occurred to the writer that it would be a good idea if these pictures were made more frequently than they are. With the professional photographer it seems that it is only in large groups that these pictures are produced. With the advent of the black and white grounds, and the general abolishment of painted scenery, we, as a class, have cut our pictures more and more narrow. This is probably in order to get rid of the overpowering effect of these characterless grounds, whether white or dark, till at the present time the modern professional workers are mainly in a state of hopelessness. We are tiring of these plain grounds, which are often too powerful in their effect, which possess at times, on account of the weight of attraction, more attention than the figure itself. We know the inappropriateness of most painted ones which very rarely fit the subject. Out of this some of the modern workers are making on their negatives grounds to fit their subjects.

The opportunities for pictorial work and our growth toward its accomplishment would increase if we were to make smaller figures in our vertical pieces. Try to obtain some character in our grounds, and also make more horizontal work, while seeing what we can do toward obtaining pictorial qualities.

As an aid toward more readily starting upon this line, the writer would suggest the employment of a broken ground, *i. e.*, with no well-defined or strongly indicated contrasts or designs. The lights in the ground should be some bit removed from white, and the very dark places rather rare; and those where they would be most needed as a base, it would be comparatively easy to work in a few lights as well as medium and low-toned designs to fit the subject. This is now done by some workers, and if more generally taken up and worked out we should soon see a very decided change for the better at our convention exhibits and a general improvement for our patrons. A perfectly plain dark-red burlap ground is good, and could be worked upon just as well.

(To be continued.)

REMEMBER that the National Convention (October 3d–8th) affords a splendid opportunity to visit the Fair and the Convention.

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The fifth of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of Mrs. Käsebier, of New York, are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

MRS. KÄSEBIER believes that the key to success in individual portraiture is love of the work and absorption in it. While technique is important and should be fully mastered, the greatest thing is to secure the interest of the sitter so that he relaxes that control of the features which is usual in the presence of strangers and allows the feelings full play. To excite as many emotions as possible, to light up the face with interest, humor or surprise, and to subdue it into reflection, should be part of the photographer's art.

By Gertrude Käsebier
Study No. 1

Bearing in mind this importance of the psychological or mental part of the sitter, Mrs. Käsebier feels that *likeness* must be the first aim. Let the likeness be as becoming as possible, with display of such dignity, animation, or reflection as is proper to the sitter's character, but let it be at once recognizable by the sitter's friends. After securing likeness, do all that is possible for love of the work itself; to infuse as much art as may be, giving harmony and proper relationship to those lines and masses which make up the expression of the picture, as apart from the expression of the sitter.

As the greatest art is the simplest, it is necessary to avoid all false elements, so that the picture may record the person, and not any mere phase of fashion, or arbitrary arrangement of lines of background and accessory. For this reason, and also because most of her pictures are intended for framing and hanging, Mrs. Käsebier seldom makes anything but large heads, which "carry" well, and hold their position when hung in an ordinary room. Occasionally a figure has peculiar lines of grace, which make it wise to attempt a full-length, but an incidental objection to this is that such a subject requires much consideration and a certain number of background and accessory lines, which are apt to become conventional and to fetter the photographer.

Mrs. Käsebier especially objects to forming any idea beforehand as to how the sitter should be treated, and considers that it is often a disadvantage rather than otherwise for the photographer to be personally acquainted with the sitter. She attempts to keep free from any scheme until she studies the face on the ground glass, which gives her an idea of the shortened scale of tones and of the monocular drawing which result from the use of photographic plate and lens. In dealing with the subject reproduced, Mrs. Käsebier began by reflect-

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ing that the sitter is a blonde with ruddy cheeks and forehead blanched by the line of the hat in such a way as to throw that part of the head out of key and drawing. The easiest way to avoid this difficulty is to let the sitter wear his hat; so after trying the head without covering in various

By Gertrude Käsebier
Study No. 2

lightings, she suggested that the hat should be worn, and made Study No. 1. Then, feeling that the use of the hat was simply dodging a difficulty which ought to be grappled with, she had the hat removed and placed the sitter in a new position with diffused light and in front of a tapestry background. Here the hair too nearly blends with the background, and the modelling necessary to give it life and to show the form of the head was wanting, hence the lighting was changed so as to fall more strongly upon the face while still keeping the brow and top of the head in shade (Study No. 2).

After two or three further exposures the sitter began to lose self-consciousness, and the temperament began to reveal itself, because the photographer had worked away from the full-face to the side-face attitude. The full-face (says Mrs. Käsebier) is the attitude a man shows to the world. He purposely keeps it inscrutable, and by long habit prevents it from revealing his true character, so that to see the lines of character one must get away from the full face. To record a temperament, one must work for harmony in the lines, hence it is important to secure on the shadow side appropriate lines to balance those of the lighted side of the face. This is found in Study No. 3, where the overcoat comes in usefully to supply a heavy mass and one or two definite lines, and where the little touch of white given by the collar forms a small but unobtrusive high note. In this partly turned position the face and neck begin to reveal the natural lines of the character, and the final example (Study No. 4) gives lines which satisfy Mrs. Käsebier that they indicate the real character of the sitter. She says: "I cannot explain in words why this is more satisfactory than some of the others, but it is a real harmony, which pleases one but which cannot be defined (any more than a harmony in music) to those who are not capable of personally appreciating."

By Gertrude Käsebier
Study No. 3

Mrs. Käsebier's method is to make a considerable number of exposures (generally six or eight), using every effort, by conversation or by keeping the sitter moving, to relax his control of his features, and yet to keep the expression animated and natural. All the studies are made in a direct east light with one large side light and small top light near the northern end, and with an ordinary window near the southern end of the wall. The Studies 1,

H. SNOWDEN WARD, Esq.
By Gertrude Käsebier, New York
(See article, "The Portrait and the Studio")

2, and 3 were all made principally by the light of the window, while some light from the larger space modified the front lighting. The amount of light is cut down partly by blinds and partly by keeping the sitter at a distance from the lights, so that with a large stop the exposures are usually three to four seconds. Very little retouching is done, and the plates are developed by the stand development method until the image is just nicely apparent. They are then placed in water for some time, after which the development is finished by means of local application with wads of cotton-wool.

The printing is in platinotype, and most of the prints are finished by local treatment with the Stieglitz method of glycerine and mercury, so that the prints generally show variety of local coloring. This is one of the reasons why it is extremely difficult to reproduce at all satisfactorily the most individual work of Mrs. Käsebier.

WHISTLER, AND THE GENTLE ART OF—PHOTOGRAPHY.

BY WILL A. CADBY.

"THE imitator is a poor kind of creature. If the man who paints only the tree, or flower, or other surface he sees before him were an artist, the king of artists would be the photographer. It is for the artist to do something beyond this: in portrait painting to put on canvas something more than the face the model wears for that one day; to paint the man, in short, as well as his features. . . ."
—*From the third edition of Whistler's Collected Writings* (*W. Heinemann*).

Whistler applied to Photography! At a glance it seems nothing short of barbarism to mention in the same breath the gay butterfly and the prosaic camera. But the master himself—as will be seen by the quotation just given—referred to our craft, and this must be the excuse for my daring.

But photography has changed since 1878, when the words quoted were published in *The World*, and it is now generally admitted that the lens is no longer *only* the king of imitators; and although, possibly, at that date, few camera-workers could have found in Whistler's utterances on art much that they would have had the temerity to apply to their own craft, such is not the case now. Photographers have become bolder, and take their work more seriously; consequently I propose to give a few quotations from his writings that we may profitably ponder upon:

"To say of a picture, as is often said in its praise, that it shows great and earnest labor, is to say that it is incomplete and unfit for view. Industry in art is a necessity—not a virtue—and any evidence of the same, in the production, is a blemish, not a quality."

"Nature contains the elements, in color and form, of all pictures, as the keyboard contains the notes of all music. But the artist is born to pick, and choose, and group with science, these elements, that the result may be beautiful. . . ."

"To say to the painter that nature is to be taken as she is is to say to the player that he may sit on the piano."

"That nature is always right is an assertion, artistically, as untrue as it is one whose truth is universally taken for granted."

"The dignity of the snow-capped mountain is lost in distinctness, but the joy of the tourist is to recognize the traveller on the top. The desire to see, for the sake of seeing it, is, with the mass, alone the one to be gratified, hence the delight in detail."

"He" (the artist) "does not confine himself to purposeless copying, without thought, each blade of grass, as commended by the inconsequent, but, in the long curve of the narrow leaf, corrected by the straight, tall stem, he learns how grace is wedded to dignity, how strength enhances sweetness, that elegance shall be the result."—*From Whistler's "Ten O'clock," taken from the third edition of his Collected Writings* (*W. Heinemann*).

It seems that these sparkling words, the utterances of one who must have almost thought in harmonics of color, need no commentary for those (at least) of artistic temperament, whatever be their medium of expression; and although Whistler's conception of beauty was so completely wrapped up in color schemes, even to the ignoring of his sitters, and dubbing their portraits harmonies in tone and color, yet we photographers may still learn very much from him. Even if his influence in a measure opens our eyes to the beautiful in color, it will not be lost upon us, for it will have a refining effect on our own particular branch of art—black and white—which is sure to be observable in our work.

In the time to come, when Whistler's few written words, and the sting that many of them contained, may be forgotten, such paintings as his Carlyle, his portraits of his mother and Miss Alexander—his symphonies, his nocturnes, his "arrangements"—will certainly go on attracting an ever-increasing crowd of artistic pilgrims to their shrines.—*The Amateur Photographer.*

BROMIDE TONING.

MR. W. E. GATES in a recent address on the above subject before the Photographic Society of New South Wales, said in part as follows:

Considering the variety of colors obtainable on the various printing-out papers and on carbon prints it is not difficult to understand why the black color of an untoned bromide print becomes monotonous to some who otherwise appreciate the conveniences of the bromide process.

Unfortunately, there has always been a considerable doubt, too often well founded, as regards the permanence of toned bromides; but it seems to be now established that in the case of one method, and possibly in that of a second, permanency is assured, providing ordinary precautions are observed. It is on these two processes that most of my discourse will be based, but before proceeding to my main topic I should like to refer to two other processes which have been tried and found wanting, not only in my hands, but in those of others of my acquaintance.

There seems to be little doubt that the hopes that were expressed that copper ferrocyanide toning, introduced by Mr. Ferguson, would prove permanent were not well founded. The tones given are very beautiful, which makes one wish the more that they were abiding; but in spite of all my precautions, I find that in the course of a very few months, especially when mounted, prints so toned become badly stained. When I last addressed you I expressed the hope that possibly the prints then in my hands toned by this process had become marked on account of insufficient washing after toning, although I had always been careful to wash them for the full time recommended, but a subsequent batch of prints, in regard to which I took especial pains in this direction, have shown the same deterioration, so that I have now entirely given up this toning method, and will say no more about it.

Uranium toning, the pioneer of toning methods, is also of doubtful permanence, although in this respect (in my hands at least) it seems to be superior to the copper ferrocyanide method. Like the latter, it gives a long range of colors, which, however, seem to be vulnerable to the attacks of the atmosphere and other influences, and it now seems to be falling into disuse.

In these two methods the colors produced are in the nature of a deposit on the original silver image, and can easily be dissolved; in the case of uranium by immersion in weak ammonia-water or other alkaline solution, or even by the continued action of running water, and in the case of copper ferrocyanide by treating with an amidol developer.

The two toning methods which I now intend to discuss are entirely different in their nature and results from those just mentioned, inasmuch as the original silver image is replaced by another of silver sulphide, which is a very stable salt. The complete absence of metallic silver from

the toned image makes the print immune from any of the deleterious gases found in the atmosphere, and conduces to absolute permanency.

Of the two I will first direct your attention to the hypo-alum method, introduced by the Kodak Company. I have not detected the least signs of deterioration in prints in my possession toned by this method. It is very simple, but somewhat tedious, and gives an image of a good sepia color.

The toning solution is prepared as follows: Ten ounces of hyposulphite of soda crystals are to be dissolved in 70 ounces of boiling water, then one ounce of powdered alum is slowly added with constant stirring. The solution will be milk white; when cold, a white deposit will sink to the bottom, leaving the liquid above quite clear. The solution must not be filtered, and should be shaken up before use. It is advisable to ripen it by allowing two or three waste bromide prints to soak in it for a day or two. The solution improves through use. It can be used either hot or cold, the toning process taking about twenty to thirty minutes in the former case, and from twelve hours to three days, according to the time of the year, in the latter case, summer, of course, requiring the shorter time.

To obtain the best results with this method, it is essential that the prints be developed with amidol, either of the following formulæ acting admirably:

Sodium Sulphite (crystals)	22 grains.
Potassium Bromide	1 grain.
Water	1 ounce.

Just before use add 2 grains of amidol. The mixed developer does not keep well, but it is so easily prepared from the dry materials that there is no necessity to keep stock solutions and run the risk of deterioration. If desired, a stock solution of the sodium sulphite and potassium bromide may be kept in small bottles filled to the neck, but it should not be allowed to become old, as it loses strength. For daylight enlargements Mr. Gates recommended for Wellington paper a rather more complicated formula, containing only half the quantity of sodium sulphite, and with some citric acid added. The formula is as follows, and it works slowly, frequently taking ten minutes to develop a print:

Sodium Sulphite (crystals)	55 grains.
Citric Acid	2½ "
Potassium Bromide	2 "
Water	5 ounces.

Just before use add to each ounce of the above 3 grains of amidol. Give a full exposure. In place of the crystallized sodium sulphite in the above formula, the anhydrous soda sulphite is recommended, as, being in a powder, it easily dissolves. It is, however, twice the strength of the crystals, so that only one-half of the quantity must be used. Keep the bottle of anhydrous soda sulphite well corked. Two ounces of the first formula will develop at least half a dozen correctly exposed half-plate prints without deteriorating the color, while three ounces of the second formula will develop at least four whole-plate enlargements. Mr. Gates recommended a plain fixing bath of one ounce of hypo to six ounces of water. Leave the prints in the fixing bath for at least fifteen minutes, and use it fresh each night.

The toning process can be commenced as soon as the print is fixed.

For the hot bath the print should be a shade deeper than usual, and should be immersed in some of the cold solution for about fifteen minutes to harden the film, the alum accomplishing this object, otherwise blisters may result. The bath should then be gradually raised to a temperature of about 120° F. and kept as nearly as possible at that point till the toning is completed. The surface of the print should then be rubbed with a tuft of cotton-wool to remove any scum, and a complete washing must follow. Not less than twelve changes of water, of ten minutes each, should be used, and between each change it is advisable to lay the print face down on a sheet of glass and squeegee it. This facilitates the removal of the hypo.

The hot bath is rather messy, inasmuch as a stove is required to keep up the temperature, and the solution gives off a rather unpleasant odor when heated. All this can be avoided by using the bath cold, as is my invariable custom. The toning action is then rather prolonged, but on the other hand the print requires no attention. In the middle of summer the print may be

laid face downward in the solution, in the morning, and will probably be finished the same evening, but a difference of an hour or two either way is immaterial; in fact, my experience shows that with a cold bath the toning action stops when a certain stage is reached. When toned the surface of the print must be rubbed with cotton-wool, and washing carried out as for the hot bath. The only other precautions to be observed are to make the print much darker than usual, as there is a considerable reducing action with the cold bath, and to see that no bubbles form on the surface of the print when first placed in the bath.

The remaining process I have to describe appears to possess all the elements of simplicity and permanence. It gives a result very similar to hypo-alum, but with the following advantages over that method:

1. It is a rapid method.
2. No heating solutions are required.
3. It has no intensifying or reducing action, consequently the original scale of gradation remains unaltered.

Three solutions are required, as follows:

No. 1.—Copper Sulphate	.	200 grains.
Potassium Bromide	.	200 "
Water . .	.	10 ounces.
No. 2.—Nitric Acid .	.	100 drops.
Water . .	.	10 ounces.
No. 3.—Sodium Sulphide	.	1 ounce.
Water . .	.	10 ounces.

Be careful not to confuse the latter substance with the well-known sodium sulphite. It is very diliquescent, so it is as well to obtain it from the chemist dissolved in nine ounces of water. This solution is boiled for five minutes to get rid of any iron which may be present as an impurity, and which may affect the tone of the print. The iron will be precipitated in the form of a black powder, and must be filtered off, and the bulk of the solution made up to 10 ounces.

The sodium sulphide has an extremely unpleasant odor. This unpleasant smell is the only drawback to the toning process.

The print to be toned should be of ordinary depth, and after development and fixing should be thoroughly washed. It is then to be soaked for ten minutes in an alum solution made up of 1 ounce of powdered alum dissolved in 20 ounces of water, again well washed for half an hour and dried. Complete elimination of the hypo is absolutely necessary, and the alum serves to remove the last traces of this, besides hardening the film, as the various operations tend to soften the gelatine.

The print is immersed in the bronzing solution (No. 1) till the image disappears as far as possible. This will be effected in about three minutes, after which the print is rinsed under the tap for a few seconds, and transferred to the nitric acid solution (No. 2) for five minutes. This is to keep the whites of the pictures clear, and is important. After washing for five minutes, take half an ounce of the sulphide solution (No. 3) and make up to three ounces with water. On pouring this over the print, the image will at once rush up. To ensure permanency allow the print to remain in the solution for a minute after toning appears to be complete, then wash for half an hour in frequent changes of water. No. 1 solution can safely be used for three or four prints, but of course becomes slower in action. After being once used the other solutions must be thrown away.

To sum up these two methods, I would suggest that those who object to the unpleasant odor emitted by the sodium sulphide might try the slower but otherwise unobjectionable hypo-alum method, using the cold bath. A permanent tone should result from either.

I might add that the best results with both toning methods are undoubtedly obtained on yellow surfaced papers.—*Photo News.*

The Photographers' Association of Kansas meets at Topeka, September 20th, 21st, and 22d. The official programme of the convention is almost ready as we go to press, and the indications are for a fine convention in every sense of the word. All photographers embraced within the limits of this association are urged to be present and to have an exhibit of their work in evidence. Too much importance cannot be attached to these annual meets, the value of which can never be known until it has been tried.

PLATINOTYPE PRINTING.*

In a practical demonstration of platinotype paper before a recent meeting of the Royal Photographic Society of Great Britain Mr. E. T. Holding said in part:

Platinotype paper is easy to manipulate, the process is quick-printing (taking half or a third the time required by silver printing-out paper), and the prints are absolutely permanent, the image being of platinum—a metal which is attacked by scarcely any known reagent—upon a support of pure paper. An additional recommendation is that a platinotype print can nearly always be saved, however badly over- or underprinted. The platinotype process will also do ample justice to almost any negative. A small disadvantage of the process is that the printing has to be done by daylight.

Platinotype paper was invented by Willis in 1873, improved in 1878, and further improved in 1880. The platinum was at one time added to the paper in the process of development, but it is now upon the paper, and the troublesome and expensive operation of introducing it in the course of development is abolished.

The paper must be kept quite dry. It is, therefore, supplied in hermetically sealed tins, and the paper on removal must be kept in proper storage boxes containing chloride of calcium, which absorbs any moisture that may be present in the storage box. This keeps the paper so dry that it requires careful handling to prevent it from cracking, a defect which will show to the end of the process. Everything used in connection with platinotype paper should be perfectly free from damp. Use an India-rubber sheet at the back of the paper in the printing-frame to prevent atmospheric action. The print may be stored in the calcium tube for some weeks, but it is not advisable unduly to delay developing. The sensitive side of the unprinted paper is of a bright lemon color, upon which the image turns to a purple color when sufficiently printed. All but the finest detail should be seen, and the print must be examined in very weak light.

* Printed from the Journal of the Society.

The following formulæ are for black tones:

Ilford Company—

Potassium Oxalate	2 ounces.
Potassium Phosphate	½ ounce.
Water	14 ounces.

Dilute with equal quantity of water.

Platinotype Company—

Potassium Oxalate	2 ounces.
Water	7 ounces.

Dilute with twice the bulk of water.

Eastman Company—

Potassium Oxalate	1 ounce.
Potassium Phosphate	½ ounce.
Water	10 ounces.

It does not appear to matter how strong in oxalate the solution is. I have used the first bath, which gives very satisfactory results, three times as strong and at half the strength, but there is little difference between their results, given a correctly timed print. If the developer produces a print of a brownish color it can be made to print blacker or blue-black by acidifying the bath with a few drams of oxalic acid. The developing solution may be used repeatedly, a used bath being in fact better than one freshly made. But when using an old developer one must see that there is no scum on it, for this causes little immovable flecks of black to form on the print. The image comes up quickly upon immersion in the developer, but the print should not be removed until the desired strength is reached. It is then put into the following clearing bath without intermediate washing:

Hydrochloric Acid	1 ounce.
Water	60 ounces.

One effect of clearing the prints is to turn the bath yellow, and a print is not properly cleared until it ceases to color the acid bath. Traces of yellow in the bath indicate that the iron has not been cleared from the print. At least three clearing baths are necessary, and the last bath must remain perfectly clear. The print does not change in the acid bath, except in so far as it loses its yellow color.

The developer, used cold (about 60°), should produce agreeable black tones; too warm or too old and degraded a developer

or damp paper show themselves in a browish print.

The cleared prints require washing in three or four changes of water, and may then be dried between blotting paper. The addition of a pinch of washing soda to the washing water, to neutralize any acid that may be left in the paper, has been recommended, but in order to be quite sure that no acid remains, the water that drains from the print may be tested with blue litmus paper. The method of producing black tones by a hot bath (for which a paper is made specially) seems to have very little to recommend it; the results are no better than those of the cold bath, and the method is more troublesome.

Sepia tones may be obtained by many methods, but I will refer first to the papers made specially for these tones. The Platinotype Company make a paper for development in a hot bath. This paper is much more sensitive than ordinary black-tone paper; it requires more careful handling, and should be examined only in the weakest possible light; otherwise, the manipulation is as simple as that of black-tone paper. Sepia paper is not supposed to keep very well before development, but I have found that when four or six months old, it gives very much nicer tones than new paper. Two prints, one on new sepia paper and the other on paper five or six months old, are before me. The tone of the old paper is cold and deep, while that of the new tends toward a hot brown color. The developer for the Platinotype Company's sepia paper is a special one, sold by the company. It is used at a temperature of 150° to 160° F. I have, however, developed sepia prints in the ordinary black-tone developer, with apparently satisfactory results. Sepia papers should be cleared or washed in a bath by themselves, and not in the bath used for ordinary papers.

Another sepia paper is made by Jacobi, for cold development with special salts, but a print on this paper developed with the ordinary cold developer is quite satisfactory.

Sepia prints may also be made by introducing chloride of mercury into the oxalate developer. This method gives a fine range of colors from a dark, rich sepia to golden brown. I cannot speak as to the permanence of prints made in this way, as I believe that when any additional agent is introduced into the oxalate bath the permanence of the resulting prints is more or less interfered with. I think, however, we are justified in obtaining these colors by these methods, provided we take the care of the prints we should bestow on water-color pictures. The prints will certainly retain their color for a considerable time, and while they do so, they are generally very agreeable. A disagreeable dark brown will be obtained, however, by using a very strong solution of mercury, but with the following formula, introduced by Mr. C. F. Inston, the results are quite satisfactory:

A.

Potassium Oxalate	1 ounce.
Water	7 ounces.

B.

Potassium Citrate	75 grains.
Citric Acid	120 grains.
Mercuric Chloride	45 grains.
Water	7 ounces.

The two solutions are made separately and used in equal proportions.

The solutions should be used cold, and should be touched as little as possible with the fingers, as the mercuric chloride is a strong poison. One characteristic of this mercuric chloride developer is its power of bleaching the print, of which advantage can be taken in two or three ways. A slightly overexposed print from a flat negative developed in the mercury bath gains considerably in contrast, and is much better than if developed in the ordinary oxalate bath. The bleaching action takes place particularly in the more delicate parts of the print, the darker portions remaining practically untouched. Developers in which the mercuric chloride is present in incorrect proportions give undue contrasts and sometimes double tones. Prints developed in this bath should be cleared in a bath slightly weaker than that used for the black prints, because the acid reduces the mercury, and, if the print remain long in the bath, entirely discharges it, the light tones being almost eliminated. A suitable clearing bath consists of hydrochloric acid ½ ounce, water 60 ounces.

Mr. Alfred Steiglitz has utilized this action of the clearing bath for the improve-

ment of prints from flat negatives. His method is to overexpose the print, develop in the oxalate and mercury bath, and clear in a strong acid bath until all traces of the mercury disappear. The result is a brilliant print with good black and white contrasts.

Assuming a warm tone is required upon paper intended for black tones, the paper may be slightly underprinted and developed in a heated bath. This point is illustrated by some prints on ordinary paper, developed (1) in a cold bath, (2) in a bath heated to 96° F., and (3) in a bath at boiling point. This experiment showed that, whereas in (1) the print has been underexposed and is not presentable, developed cold; in (2) with the developer at 96°, the print is full of vigor and detail, and the color is an agreeable warm black; while in (3) with a boiling developer the print has the appearance of an overexposed print. The three experiments were made with one print divided into three parts, and they show that almost any print can be saved—and further, that if a warmer black than a cold developer gave is wanted, one need only underprint and develop with hot developer.

Glycerine affords tremendous possibilities to the platinotype printer. By coating the print with glycerine, and then applying the developer locally with a brush, it is easy to retard or entirely eliminate portions of a print. Where very black tones are required, the glycerine may be blotted off. The glycerine developed print is cleared in the usual bath, which should be helped in its operation by gently wiping the print with a tuft of cotton-wool; otherwise the development may continue under the glycerine before the acid can get through.

Platinotype prints may also be toned with catechu, the bath being used hot. Packham, who described the process to the society, said: "The metallic deposit on a platinotype print has a singular affinity for the organic substance known as 'catechu,' which has for years been used for dyeing textile fabrics."

There is of course a difference between toning and staining a print. It is possible to stain a print by saturating it with almost any colored liquid, but in toning the paper is generally required to remain white, and the image only to change color. Packham claimed that catechu would change the color of the platinotype print, because of its affinity for the deposit, without staining the paper. If, however, a print be allowed to remain in the catechu too long, or if the bath be used too hot, there is a staining of the paper. Properly done the toning gives a very pleasant color. The catechu does not intensify but rather softens the print. The solution is supposed to be used at 150° F., but it is not absolutely necessary, I believe, to use it quite so hot. A print toned in this way, if unsatisfactory, may be washed with soap and water and hung in the sunshine, or put into a weak hydrochloric acid bath to restore its original color. I have some prints which were treated with hydrochloric acid, and changed from a disagreeable red color to a more agreeable tone.

Uranium Toning. This method is rather dirty and disagreeable. The color is somewhat fugitive and frequently unpleasant, and one is likely to get staining instead of toning. If one does not like its results, however, the print can be returned to the developer and brought back to its previous state. Uranium toning also intensifies, and a weak print may sometimes be saved by this process. A long range of colors may be obtained from sepia to red-chalk, and greens and blues are also obtainable. The formula I have used is the following:

A.

Uranium Nitrate . . .	10 grains.
Glacial Acetic Acid . . .	1 dram.
Water	5 ounces.

B.

Potassium Ferricyanide . .	10 grains.
Glacial Acetic Acid . . .	1 dram.
Water	5 ounces.

Mix separately until dissolved, combine and add sulphite of soda, about the size of a pea. The prints soon turn a red color. Prints intended for uranium toning require special care in development and clearing. The development should not be prolonged, and it is essential that the iron salts shall be completely removed. To ensure this, five baths should be used, or one extra after the last bath appears quite clear of yellow stain. They should then be washed

for about an hour in six changes of water. It is best to dry the prints before toning. For red tones the print should be a little underexposed, as considerable intensification occurs in the bath—a somewhat prolonged immersion being required.

For blue tones the same formula is used, but the print is left in the clearing bath for only ten seconds before being placed in the uranium bath. The print will gradually turn blue, and, when rather darker than required in the finished picture, should be cleared in a weak acid bath composed of

Hydrochloric Acid	½ ounce.
Water	120 ounces.

It is then washed in two or three changes of water. This presupposes that one intends at the outset to get a blue print, but if we desire to convert a brown print into blue, it is immersed in

Sulphate of Iron	½ ounce.
Water	20 ounces.

It will then gradually turn blue, and it only remains to wash the print in water. In the first blue process, the reason for placing the print only for a short time in the clearing bath is that a portion of the iron shall be retained in the print, for it is the action of the uranium and iron together that produces the blue tone. The shorter the immersion of the print in the clearing bath, the bluer will be the result; while the longer it is in the clearing bath, the greener or browner will the print become.

HANDLING THE ADULT SITTER.*

THE editor of a photographic journal is naturally a much-photographed man, and during the past twenty-five years I have probably been "took" more frequently than even the most popular professional beauty or the most abandoned criminal. With such opportunities for observing the ways of operators one is able to form an opinion as to whether their methods are improving or not, and as to changes and fashions which may be good or bad. In one particular direction the improvement has been very great. Probably it has been largely unconscious on the part of the operators themselves, and it has taken place at varying rates of speed in different studios and in different districts. In fact, there were some men, twenty-five years ago, whose methods were pretty nearly those of the most advanced men of to-day; and there are still a few operators—very few, I believe—who are working just as they did (or as their employers did) a quarter of a century ago.

The particular phase of operating to which I refer is the posing of the sitter, and its traditions have gone through three principal stages:

1. The sitter is posed by the operator.

2. The sitter poses himself, knowingly, at the instruction of the operator.

3. The sitter poses himself, unconsciously, at the instruction of the operator.

The first method flourished in the day when people compared sitting for a portrait to a dental operation, and although this was a libellous comparison, there was, as we now know, an unnecessary amount of pushing and pulling, of wheeling about in castored chairs, of changing accessories and backgrounds, and, finally, of fixing with head-rests, back-rests, body-rests, and even, sometimes, hand-rests and elbow-rests. In this method the head was raised and turned and twisted, the arms and legs, even the hands and separate fingers, were laboriously posed and arranged, until no human sitter could possibly retain an easy attitude or an interested expression.

When it became the fashion to allow the sitter to do most of the posing, at word of command, a very great step had been taken. Of course, there are, and always will be, some sitters who cannot do even such a simple thing as "raise the chin just a little," or "turn the eyes this way without moving the head;" but with most people this sort of thing answers much better than personal handling. By arranging the lighting beforehand, by deciding the

* Reprinted from British Journal of Photography, Jubilee Number.

position for standing, or placing the chair for the sitting figure, and by selecting a chair of which the height, depth, and especially the positions of the arms properly fit the sitter, and then by a few words suggesting that the head should be raised, turned to the left, the hand dropped over the chair-arm, etc., a sitting may be made very short; the sitter is interested rather than bored, and the pose and expression have a good chance of being satisfactory.

But there is yet a further development of method; a system in which the sitter does the whole of the posing without being asked to do so. It is the most valuable art an operator can acquire, and for its highest development it needs the intelligent co-operation of one assistant, or even of two assistants, with the operator. The art is based upon wide observation of humanity—of both physical and mental characteristics. The fact that familiar attitudes are easily taken, while unfamiliar poses are always stiffly held, is perhaps the most important basis of success. This fact makes it desirable to know something of the sitter's tastes and avocations. A lady who regularly rides horseback will naturally hold her arms and shoulders and head well posed if she is given a rather high seat, with no temptation to lounge, while a man who spends most of his time in writing will always most easily take a position in which there is some support for his forearm, even if it is only on the arm of a chair. The effect of the seat upon the carriage of the whole upper part of the body is important. Many a sitter, if placed in a low chair, especially if it is soft and easy, will at once lounge, curving the spine, dropping the shoulders, and dropping the head; but if seated on a fairly high stool or hard-seated chair, will hold the body, shoulders, and head in a good, but not stiff, position. Further, even with a sitting pose, a change so simple as the placing of a hassock under one foot will cause a slight alteration in the whole pose of the body, bringing up a shoulder that drooped, swinging the body round a little, and changing the pose of the head. These facts, and a thousand-and-one similar, are part of the stock-in-trade of the first-class operator, who needs observation, reflection, and good memory, that he may know how to get the effects he wants without experimenting on an individual sitter.

For securing a turn of the head or eyes, the discussion of some object (a picture, frame, piece of bric-a-brac, or even the war or weather) is better than a direct request. With sitters who habitually look straight at the person they are talking to an abstract subject is sufficient, but with those who usually avert their eyes, some definite subject, not too large, is useful. Such an object should not be introduced until just before the exposure is made; and then, if the exposure is long, an unpleasant stare may be avoided by moving the object a little nearer to, and farther from, the sitter, keeping it in a line with the direction of gaze. Thus the eyes are prevented from moving (without need to tell the sitter to keep still), yet the direction of their axis is changed just sufficiently to prevent stare.

It is never well to let your sitter know that you are dissatisfied or unsuccessful. If the first few dodges fail, instead of continuing for a long time trying change after change, it is well to make (or pretend to make) an exposure, then let the sitter walk around for a moment or two, discuss some object of interest, and begin again. In this way fatigue and stiffness are prevented.

These are pieces of common observation on which the modern operator bases his success. Each must make his own rules and methods, and must vary them for every sitter. The development of the "suggested" pose, to replace the pose which was "made" and that which was "requested," is one of the greatest advances made in photographic portraiture during the half-century, and I doubt whether any of the improvements in technique are really so important. The cultivation of this method of posing seems the one thing most desirable for the successful operator, and I believe it will do more than anything else for the introduction of real artistry in our portrait photography. —[H. SNOWDEN WARD, F.R.P.S., Editor of *The Photogram*.]

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PHOTOGRAPHIC RAW PAPERS.

THE following article is reprinted from the *Photographic Dealer's Annual*, and forms a very interesting addition to photographic literature of the present time. Many photographers are wholly unfamiliar with the conditions attending the manufacture of paper used in their output, and, therefore, fail to understand its cost. A careful reading of the following will, we believe, prove not only interesting, but instructive in many ways.—[ED. W. P. M.]

The raw paper used for photographic purposes, such, for instance, as platinum, bromide, and albumen papers, has to be specially manufactured for the purpose. Not only has the raw material to be of the finest quality, but a special plant has also to be used, and altogether the operations require a sound technical knowledge. Consequently, the cost of production of such papers is proportionately high, and the commodity is more or less expensive. Raw paper always forms a serious item of expenditure with all photographic paper-makers, and a few thousand pounds' worth of it can be stored in a very small room. The supply is practically in the hands of two or three Continental firms, although there are now other makers who are supplying satisfactory raw papers which are becoming known in this country. So far as we are aware, the commodity is not being made by any paper-maker in the British Isles. It is absolutely necessary in all raw papers for photographic purposes that there should be no trace of foreign metals present, otherwise markings will appear directly the paper is coated with a silver emulsion. In all working machines there are microscopic particles of metal continually being thrown off, which, although of no consequence in any other case, would mean ruin to paper for photographic purposes if allowed to pass unnoticed. It is for this reason, we understand, that the machine rollers are either silver-plated or made entirely of the metal. Even if particles of this metal were thrown off, it will readily be seen that they would not affect a silver emulsion. Not only so, but the water used in the manufacture has to be of the purest, and free from traces of iron and other metals. One of the reasons of the success of the manufacture of such papers in Rhenish Prussia is directly traceable to the quality of the water in the district.

It cannot be gainsaid that the manufacture of raw paper for photographic purposes has received the attention it deserves. So far as we recollect, the subject is not mentioned even in any dictionary of photography, and yet it is of immense interest to all paper-makers. For this reason we give below an outline of its manufacture, which first appeared in *La Revista Tecnica*, from the pen of Dr. M. Scava, and is referred to by our contemporary, *The British and Colonial Printer and Stationer*. The writer says that the manufacture of such papers can only be undertaken at large works where fine articles are manufactured. Continuing, Dr. Scava says that he analyzed some samples of this paper (namely, that made by Messrs. Steinbach & Co., of Malmedy, Rhenish Prussia, and Messrs. Blanchet, Frères & Kléber, of Rives (Isère), France), at the laboratory for testing paper at the Royal Italian Industrial Museum. The approximate percentage of used flax was 85, and that of new cotton 15. The sizing was resin and starch mixed. The resistance to crushing, measured with a Schopper dynamometer, was slight, considering the nature of the pulp, which had a short fibre and was worked; the average elongation was 24 per cent., and the average length of rupture, 2500 metres, estimated with a Schopper dynamometer in an atmosphere containing 65 degrees of moisture (Regnault hygrometer).

The humidity of the paper was about 6 per cent.; the percentage of ash was 3 to 4 per cent., and in some instances ran as high as 9 to 14 per cent., being composed essentially of kaolin and baryta.

The writer then states that other firms are now endeavoring to manufacture photographic paper in Germany, which in composition of pulp and quality resembles that mentioned above.

The great difficulty in the manufacture is to make a paper free from particles of iron and copper. These impurities, due

to the steel knives of the rag-cutting machine or bronze of the Hollander, scarcely amount to traces, but they may cause dark or blackish spots when the paper is employed for photography, owing to the action of the nitrate or other silver salts in sensitizing the paper.

It is not possible to remove every particle of metal by treatment with dilute acids, but this might, perhaps, be done by aid of the new process of Dr. E. Laudenheimer, of Darmstadt, which is based upon employment of an oxidizing agent. This process consists in treating the pulp or the paper with acid solutions of peroxides or persulphates, according to the reactions: $H_2O_2 + Fe + H_2SO_4 = Fe\,SO_4 + 2\,H_2O$ $2\,NH_4\,SO_4 + Fe = FeSO_4 + (NH_4)_2\,SO_4$. By thoroughly washing afterward all trace of the reagent is eliminated.

However, even in the best papers, Dr. Scava states that he found traces of iron, very small and certainly innocuous, which he thought was possibly due to the water employed in manufacture, some of which contains more or less traces of iron. While this is so, the process of manufacture of these papers has been carried to such a high state of perfection that the traces referred to are so slight that they may be ignored.

Attempts have been made to overcome the difficulty in making such paper, by finding some impermeable material which has no reaction with the salts employed in photography, and which could be spread over the ordinary paper before sensitizing. Recently Dr. C. Dreher patented a system for making paper impermeable to any liquid. According to this idea the operations of sizing and finishing are executed simultaneously in the Hollander, and to prevent the substances utilized for finishing from separating from the diluted resin soap solution (wax, ceresine, vegetable oils, paraffin, etc.) a soap is employed containing a large amount of resin in the free state, so as to thoroughly emulsionize the said substances added to the soap before diluting. Other methods have been suggested, but so far as we are aware they have never led to any practical result.

Dr. Scava says that rags should always be employed, as wood fibre (chemical cellulose and mechanical wood pulp) may cause the paper to turn yellow. Sizing is likewise of great importance, for if weak it allows the emulsion to sink deeply into the paper. In this case the finished print would not render the half-tones and gradations so necessary in a high-grade paper.

In analysis, a good paper gave about 3 kilograms of soap resin per 100 of pulp. An addition of starch gives the paper the requisite rigidity, while animal size makes the proofs too rigid, the sizing being superficial and apt to be decomposed in the photographic solutions.

Photographic paper, which must always be of uniform thickness, is coated with a sensitized surface (for such papers as albumen and platinum), or first with bartya, and then sensitized for such papers as gelatine-chloride and collodio-chloride. In the first case the paper must be glazed, and is passed through the calendar; in the second it suffices to pass it merely through the smoothing rolls. When albumenized paper was almost exclusively employed, Germany was in the front rank, and supplied all parts of the world, almost without a competitor. As soon, however, as the gelatino-chloride and collodio-chloride papers were largely substituted for albumenized papers, photographic paper works were built in other countries, and Germany no longer monopolized the market. In addition to the old works of Dresden, other establishments appeared at Berlin, Wernigerode, Cologne, Frankfort, Leipsic, Strasburg, Monaco, manufacturing collodio-chloride, bromide of silver, and platinum papers. In the year 1900 there were 43 works employing 500 workmen.

The industry has certainly come to the fore in Great Britain; there is now quite an army of manufacturers of photographic papers in this country whose products are sent to almost every country in the world. The same remark applied to the States, but not in so marked a degree, American manufacturers being inclined to devote their energies in only one or two directions. On the other hand, home manufacturers supply all known kinds of printing papers, and each is absolutely satisfactory.

Attention has already been drawn to the fact that the two chief works which make raw paper are those at Malmedy and Rives.

Dr. Scava says that the General Paper Company, of Brussels, purchases the production of these two works, and resells a limited amount to German manufacturers with an increase of 2-5 to 6 lire per kilogram, while it supplies England, North America, and France at a better price.

With regard to this point, it is useful to note the customs tariffs for imports into various countries:

	Per 100 kilograms.
North America	430 to 470 lire.
France	200 lire.
Switzerland	16 lire.
Spain	40 lire.
Italy	40 lire.
Russia	210 lire.

(25 lire = £1.)

In Germany the dues are less in this case, and in 1901 the imports were 52 metric tons, worth 400,000 marks, or about £20,000. The exports amounted to 345 tons, and were valued at 3,100,000 marks, or £155,000. When it was found that there would be a notable advantage in employing, instead of albumen, silver salts (chloride or citrate of silver) for such papers as gelatino-chloride, endeavors were made to find a special paper or preparation which would give brilliant results and yet prevent the sensitizing emulsion from penetrating the paper. After numerous experiments it was found that a coat of baryta spread over the raw paper for such photographic papers as referred to, attained the object perfectly, on condition, however, that the paper employed is always of the best quality and free from iron. Coating this paper demands very many precautions. Pure baryta must be used, without trace of iron, and it must be mixed with the finest size in wooden vats, avoiding the use of mixing apparatus, which easily produces bubbles in the paste and, in consequence, little holes in the coating. The baryta paste is hardened with pure alum dissolved in glycerine and afterward colored. It was anything but an easy matter to find a suitable coloring, and even at the present day it is one of the secrets of manufacture. The material thus prepared is sifted and spread over the paper, then passed through the rolls in a similar machine to that employed for ordinary paper, care being always taken to keep the baryta and paper out of contact with the iron and bronze by utilizing rollers covered with India rubber. When dried by a moderate heat, so as to prevent the size hardening too much, the paper is calendered.

An emulsion for coating the paper which has been recommended is made up as follows: A certain amount of a good hard gelatine is first soaked in water, and is afterward dissolved by heat, together with a weighed quantity of barium chloride. A solution of ammonium sulphate in water is also made, and added in small quantities to the gelatine solution. Afterward a solution of chrome alum is added to the emulsion thus formed.

The construction of the machines used for coating the paper is a specialty of the Eisengiesserei, of Offenbach-on-the-Main. Their system of work is as follows: The baryta emulsion is placed in a special basin, through which the paper passes, where the mixture is spread by aid of badger hair-brushes over one side of the paper. With a certain velocity the paper, from which the excess of baryta has been removed, is raised from the basin, and by a very ingenious automatic device, spread in large festoons over two wooden bars which move slowly, by two endless chains, in a room so as to dry the paper suitably before calendering. Three coats of baryta are thus applied to the paper, which is usually of a pale violet or rose tint, or white. The object of the first coat is to prevent the sensitizing coat from penetrating into the paper, and the two others act as a support for the sensitizer, and consequently must be made very different from the first. They give the paper brilliancy, freshness, and clearness. The gloss of the paper is less according as the coat is harder and more heavily sized. For the first coat baryta is used, hardening with formic aldehyde (Schering process). For the two others baryta is not recommended, as compounds may be formed which are injurious, owing to the action of formic aldehyde on the sensitizing substance. A well-coated paper should be free from blisters and holes, and remain flat. One of the machines already referred to will produce about 3000 metres of paper in ten hours. Germany supplies large quantities of paper prepared in this way, and it is

interesting to note that in the United States there are about forty works which manufacture this paper by the Bradfisch process.

A defect of the prepared paper is that it may turn yellow. Whether this is due to the baryta or to the sensitizing coat one can hardly say. However, from practical experiments it would seem that some paper is affected in this manner much more by one sensitizing bath than by another. Attempts have been made to remedy this by mixing citrates or tartrates with the baryta, which react with the sensitizing silver salts that are liable to sink into the paper. Dr. Scava says that this method is now almost abandoned.

In bleaching the cellulose for the manufacture of the paper one should avoid as much as possible, by checking the action of the calcium chloride, the formation of secondary products from cellulose, which weaken the fibre and destroy the whiteness of the pulp. It is also requisite to employ an antichlorine, usually hyposulphite, as it is not possible to completely remove these products by simple washing.

Free hyposulphites in photographic paper will greatly injure, with time, the sensitized surface, and will most assuredly cause the prints to turn yellow or destroy them completely. To ascertain whether any free hyposulphite remains in the paper, after employing it to remove chlorine, a leaf of paper is boiled in distilled water and nitrate of silver is added to the filtrate. The absence of any brown tint proves that the hyposulphite has been completely eliminated. When, however, a small amount of hyposulphite is employed in bleaching, free hydrochloric acid is produced in the reaction, which is injurious to the cellulose.

The presence of any free acid in a pulp is detected with Congo-red test paper (tetraciphenyl-benzidine and sulphate of naphthylamine), which, by the action of a slight trace of acid, turns sky blue. Iron can easily be detected, even in slight traces, with potassium sulphocyanide in a weak hydrochloric solution of the ash.

The materials for coloring the paper are also noxious to the sensitizer, especially ultramarine, which readily decomposes, producing sulphuric acid, which attacks the silver of the negative. To detect the presence of this substance, a method was given which consists in placing on the paper a photographic negative which has been developed in a bath containing a few drops of acetic acid. Yellow spots appear on the photograph in a few days when the paper contains ultramarine. The resisting power of color in a paper can be tested with a few touches of a diluted acid solution.

Microscopic examination will reveal the composition of the pulp. For this the latter is boiled for a length of time in a 1 or 2 per cent. solution of soda. When reduced to a thin paste, a part is carefully washed and colored with tincture of iodine on the glass object-holder of the microscope. A uniform reddish-brown color indicates the presence of fibre from pure rag, and the structure of the various elements will make it possible to detect the presence of flax and cotton, and very approximately their percentage in the pulp examined.

Misuse of the Camera. The following editorial appearing in a recent number of *The Photographer* deals with a point in the practice of photography that is well worth the consideration of the reading public. The editorial reads as follows:

"The applications of photography are today limitless and its utility is unquestioned. But useful as the camera certainly is, its usefulness ceases when it serves merely to pander to morbid natures and to sensation-seeking journals.

"The past week has been one of sufficient horror to New Yorkers, without the additional insult of the frightful photographs which many of the journals published in their mad efforts to "get the news." The staid *Evening Sun* sinned as much as any of the yellow journals, and with the *Evening Sun* it is even worse, for there, at least, the reader has not been fed on sensational pictures, and the shock was all the greater. Press photographers have, of course, to do as they are told or resign, but the law should control the publication of such pictures just as much as it does those others which come under the Comstock ban. They are just as immoral and offensive to the public mind."

PHOTOGRAPHY FIFTY YEARS AGO.

THE *British Journal of Photography* is the first among the photographic publications in the world to celebrate its fiftieth birthday anniversary. This event was celebrated by the publication of a sumptuous edition of the journal under the name of the "Jubilee Number," in which is contained a vast amount of interesting and instructive matter, particularly of a retrospective nature. We may add in passing that WILSON'S PHOTOGRAPHIC MAGAZINE will be one of the early successors to the *British Journal of Photography* in celebrating the fiftieth year of its existence if all goes well for the next few years.

Reverting to the Jubilee Number, we would commend it to the attention of all who are interested in the past and present of photography. Published as it has been without interruption during all these years, it has steadily maintained a high position among the technical publications of Great Britain. Its policy has always been progressive, and its influence has been of decided weight in advancing the interest of our profession.

The Jubilee Number is a fitting climax to its first fifty years, and should be interesting to the older members of the craft, for the reminiscences and experiences of the past, and to the younger members of the fraternity, as demonstrating some of the conditions under which their progenitors labored in the early days of photography.

The following retrospect by E. W. Foxlee is reprinted from this issue, and will, we think, be found of interest to many readers, both of the older and the younger schools. Mr. Foxlee is, as will be seen by his contribution, a worker of the old school, and one who has lived to witness many developments in the art to which his long and useful life has been wholly devoted. He is to-day one of the acknowledged men of authority on the principle and practice of carbon printing.—[EDITOR W. P. M.]

It is not everyone who can hark back to the time when the first number of the *Liverpool Photographic Journal* (now the *British Journal of Photography*) was published, and speak from personal knowledge of the state that the art was in at that early date. Then I was but a lad, yet I was, as an amateur, dabbling in all the processes then in vogue, and with apparatus of my own construction, in which cigar-box wood was largely in evidence, my first lens being the object-glass of a cheap telescope. Still, with these crude appliances I became an enthusiast in photography. But this by the way. My object here is to point out the state the art was in when the *Liverpool Journal* was first issued, now just fifty years ago, as compared with what it is at the present time.

PROCESSES THEN IN VOGUE.

The processes then in use for every-day work were the daguerreotype, calotype, wax paper, albumen on glass, and the wet collodion processes. The first-named process I worked but little, as my pocket-money was but limited, and the daguerreotype was a very expensive process to work. This will be realized when I mention that a dozen plates of the quarter-plate size, which the user had to clean, polish, and sensitize himself, cost something more than the present-day amateur has to pay for a gross of dry plates, same size, ready for exposure in the camera. But the plates were not the only expense, for the pictures when finished had to be put into cases for their protection, and these cost considerably more than the plates themselves. Hence this process was but little practised by those of limited means. The cost of chemicals was also an item. Hyposulphite of soda could not be bought for less than 1*s.* 4*d.* a pound, or 2*d.* the ounce. Pyrogallic acid was 16*s.* an ounce, or 2*s.* 6*d.* for sixty grains in a bottle. "Sel d'Or" was 4*s.* per fifteen grain bottle, and bromide of potassium was 2*s.* 6*d.* an ounce. I have quoted these prices from J. J. Griffin's list of the period. At that time the daguerreotype had reached about the zenith of its perfection, and was the one chiefly employed by professional portraitists, and it continued to be for some years

more. The calotype process was also worked for portraits, but only to a limited extent, and then mostly for the larger sizes, and for landscapes. The paper, when sensitized, would only keep for a short time, and it had to be used wet, which was a great drawback. Calotype became superseded by the wax-paper process and the albumen process for outdoor work. Wax paper was very much slower than calotype, and exposures of from five minutes to half an hour and upwards were necessary in a fairly good light, with a lens working at *f*/15 or thereabouts. But the advantage of this process was that the sensitive paper would keep for many days without deterioration; also that the grain of the paper showed less in the finished print than was the case with calotype negatives. The development of wax-paper negatives was a long and tedious operation, as if the paper were somewhat underexposed it was often a matter of many hours.

THE ALBUMEN PROCESS.

The first, on glass, was a very beautiful one, but the plates were slow, and like wax paper, took a very long time to develop. A little later on this process was considerably improved upon by Dr. Taupenot. The plate was first coated with collodion and sensitized in the ordinary silver bath. It was then washed and coated with iodized albumen and dried. Then it was sensitized again in an acidified silver bath, washed, and dried, when it was ready for exposure. These plates were more sensitive and developed more quickly than the ordinary albumen ones. This process was much used, notwithstanding that the plates were troublesome to prepare. Of course, the user had to prepare them from beginning to end himself.

APPARATUS.

The favorite size for outdoor work was 10 x 8, as enlarging from small negatives was not then in vogue. "Snap-shotting" was not even dreamt of then. There were no light bellows cameras then as now; they were mostly of the sliding-box form, and the dark slides were often packed inside, and the tail-board was hinged so as to fold up to protect the focusing screen. I once had a field camera of this size, and when the four double slides, the tripod head, and focusing cloth were packed inside (with the heavy brass binding on the camera) the affair weighed about as much as a solid cube of mahogany the same size would do. What a contrast to the present feather-weight cameras! There was, it is true, a more portable form of camera; its portability consisted in the sides being hinged, so that they collapsed after the manner of the opera hat. It must not be supposed that when paper was used instead of glass the slides were any lighter; they were not, as each slide was fitted with two plates of patent plate glass to keep the paper flat. From this it will be realized the weight the worker of fifty years ago had to carry in the field, and that he was a real enthusiast in his work, more particularly as he was often subjected to ridicule when out-of-doors. Photography was then not the fashionable hobby it is to-day. I have often wondered, if such conditions prevailed now, how many amateur photographers we should have. It might be mentioned here that in 1854 two or three forms of roller slides were introduced for wax paper. The sheets of paper were fastened together in one long length and then wound on one roller, and, after exposure, rewound on another. One form had daylight-changing spools, similar to the present ones, except that instead of celluloid and black paper wax paper and black calico were used, several plies of the latter being left free at each end to protect the paper from light.

LENSES.

At that time there were only two forms of lenses in existence, the Petzval portrait lens, about *f*/4, and the single landscape lens, the largest aperture of which was approximately *f*/15. In the majority of the former then in use the optical and actinic foci were not coincident, consequently an alteration had to be made after the image was focused to obtain it sharp in the negative.

(To be continued.)

ITEMS OF INTEREST.

THE NEW ENGLAND CONVENTION.

BOSTON, AUGUST 24, 25, AND 26, 1904.

THE outlook for the Eighth Annual Convention of the New England Association is very encouraging. A large attendance is already assured; it is expected that no less than one thousand photographers will be present.

The American Aristo Company will repeat its Chautauqua School of Photography, having in connection with it the finest exhibition of pictures ever placed by them in any convention; with their added experience it will probably be superior in educational advantages to the school held at Celeron.

This means an opportunity never before offered to the New England fraternity. Besides the school, the Executive Board is preparing a programme that will be especially valuable.

The social features of this year's meet will be very attractive. The New England boys believe that the fraternal spirit fully developed is the greatest factor toward better photographic conditions. Quoting President Tingley: "We are getting to be a big family, and a jolly one, too! We plant the seed of friendship every year at these gatherings, and it is simply wonderful how it does grow and bloom."

A goodly amount of time will be devoted to entertainment, and the Boston boys are putting in good work to that end.

We extend to all photographers, wherever located, a hearty invitation to come to Boston, where they will find the glad hand of good fellowship extended.

GEO. M. BOLTON,
Secretary.

Fixing Bath in Use for Hot Weather. No 1. Saturated solution of hyposulphite of sodium in water. No. 2. Water, 12 ounces; sulphite of sodium, 4 ounces; commercial sulphuric acid, ¼ ounce. No. 3. Hot water, 6 ounces; chrome alum, powdered, 1 ounce. When all is dissolved, pour solution No. 2 into one gallon of solution No. 1, shake well, and add solution No. 3. When settled clear, decant for use, or filter.

Blisters on Bromide Paper. A writer in the *Photogram* calls attention to the frequency of blisters on bromide paper when removed from the fixing bath to running water, which he ascribes partly to the change of temperature and partly to the lowering of the density in the different baths. He suggests as a remedy for these blisters that the print be allowed to remain quietly in a bath of plain water in which a large amount of the hypo will be eliminated before transferring them to the running water.

Professor Chas. F. Hines, who is well known as an enthusiastic photographic worker, is taking a prominent part in the Photo Record Work of Cumberland county, Pa. The object of this work is to preserve photographic records of all the old school buildings and educational institutions now standing in the county, and to file them for future reference. This work forms an important feature in the educational exhibit of the State of Pennsylvania at St. Louis. The example of Prof. Hines is worthy of being followed in other parts of the country.

TRADE PATENTS.

THE following abridged description of patents relating to photography is specially compiled for WILSON'S PHOTOGRAPHIC MAGAZINE by Messrs. Hughes & Young, Registered Patent Agents and Engineers of 23 Coleman Street, London, England, of whom our readers may obtain all information and advice relating to British and foreign patents, designs, and trade-marks free of charge.

A MEANS for determining the length of exposure in photographic cameras has been patented by E. F. CASSSEL, whereby all troublesome calculations are avoided, and consists of two or more concentric rings with pointers, and two or more scales therefor which have indicators thereon of different conditions under which exposures are usually made—as, for instance, if two scales, one would be for the intensity of the

light from "bright sun" to "very dull," while the other for the view taken. The rings would operate on the tension of the shutter-spring and the diaphragm.

A SIMPLE and effective method of mounting sensitized paper for enlarging purposes, and also enable it to be adjusted to any position, has been invented by H. WILKINSON, by means of placing the paper between hinged frames, one of which may be glazed. The back frame is adjustably fixed to an upright support, while this is hinged to a carriage adjustable either way in the horizontal plane.

TO prevent photographs from becoming damaged during transit in post, means provided by a German consist of recessing a pasteboard to enable one or more photographs to be inserted therein and retained by a clip. The address label is fixed on the opposite side of the board.

TO obviate the annoyance experienced when using flashlights for exposure, means are provided in Patent No. 4480 of 1903 of arranging a hood over a hinged platform on which a flashlight is mounted, such platform being held by a cord that becomes ignited from the flashlight, releasing and allowing it to be folded through a right angle by means of a spring, the action being sufficient to drive the fumes into the hood.

EDITOR'S TABLE.

THE following resolutions recently passed by the National Association of Photo-engravers constitute a capital endorsement for the Illinois College of Photography, Department of Photo-engraving.

"The National Association of Photo-engravers, in our Eighth Annual Convention assembled, do find after a careful and thorough investigation that the Bissel College of Photo-engraving, located at Effingham, Ill., and conducted in connection with the Illinois College of Photography, is an institution worthy of the hearty encouragement of this association.

"We further find that the students attending this school are taught each and every department of photo-engraving in a thorough and practical manner, whereas, in an engraving plant where the usual manner of apprenticeship prevails the apprentices are restricted to a single branch of the work.

"We further find that the school is well equipped and provided with competent instructors; and we do most heartily endorse the same, and recommend anyone desiring to learn the art of photo-engraving to take a course of instruction at this college.

"We further agree to accept a certificate of graduation as sufficient recommendation for a position in our workrooms."

A NEW picture booklet has just been issued by the enterprising firm of TAYLOR, TAYLOR & HOBSON, makers of the well-known Cooke Lenses. This booklet is gotten up in extremely good taste, and shows a number of half-tone illustrations that demonstrate conclusively the good qualities of the lens in question. Copies of this booklet may be had on application to Taylor, Taylor & Hobson, whose advertisement appears on another page of this MAGAZINE.

Photographic Dealer's Annual for 1904, issuing from Harp Alley, Farringdon Street, London, and conducted by ARTHUR C. BROOKES, is before us. This is a publication which is almost, if not wholly, unique, and is, as its name implies, a very complete guide to photographic dealings in Great Britain. It contains in addition to the names, addresses and other information concerning manufacturers, wholesalers and agents situated throughout the kingdom, a list of all photographic societies in the kingdom and many on the continent, many valuable articles and a large number of formulæ and tables of use to the photographer. The *Annual* is of special use to those handling photographic stock materials, but is of practical value to anyone practising the art.

LITERATURE descriptive of the new Zeiss lens (Tessar, *f*/6.3) is now being distributed broadcast throughout the country by the BAUSCH & LOMB OPTICAL COMPANY, Rochester, N. Y. Like all the other products of the famous factory of Carl Zeiss, Jena, Tessar is manufactured in America by Bausch & Lomb exclusively. The inventor's own original formulæ are followed and a new type of Jena glass, especially manufactured for the purpose, is used. Information concerning this lens may be had at all photo dealers or by addressing the company's home or branch offices.

One of the first things that appeals to the inquirer is the great simplicity of Tessar construction. Four thin lenses are used, divided into two pairs, the front uncemented and the rear cemented. There is ample space between the elements of the lens, so that the volute or iris diaphragm shutters may be properly fitted.

MR. SCANDLIN'S series of articles on "Studio Advertising" closes with this issue. They have run without a break during the past year. From the comments that have come to this journal, we feel confident that they have been productive of real help to their readers. We are glad to announce that Mr. Scandlin will continue to contribute to these pages during the coming year, covering a series of timely topics of live interest to the professional photographer.

By A. T. Proctor, Huntington, W. Va.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. SEPTEMBER, 1904. No. 573.

NATIONAL VS. STATE ASSOCIATIONS.

AT the recent Convention of the Kentucky and Tennessee Association Mr. W. S. Lively, President of the Association and Chairman of the Special Committee appointed at Indianapolis last year to consider a method of establishing closer relations between the State Associations and the National, offered the following suggestions, which were read before the Convention. The committee's report was considered by the Association, and the Executive Committee was instructed to frame the policy of the 1905 Convention on the lines suggested by the subject matter.

Reviewing the importance of building up the State Association membership in such a way as to strengthen and support the National Association, and referring to the suggestions frequently made that State and National Conventions be held on alternate years, Mr. Lively said: "There are many reasons that could be offered by both the National and State Associations against such an arrangement. He presented the following report as a possible solution of the difficulty:

"Suppose, that as the associations are organized and continued from year to year on account of the great benefit derived by the members from them as educators, that we place them upon a higher plane and look upon them in the same way that we do our other educationa linstitutions. Why not place the State Association in the same relation to the National Association, that the high or training school occupies toward the universities?

"Let the State Association adopt a uniform system of rating and marking of exhibits (the maximum being 100), and issue a certificate to each member bringing a display; when this rating shall reach a certain height to be dermined by the association, the exhibitor shall be entitled to and receive a gold badge or button, suitably engraved, which shall, together with his certificate, be a recommendation to the National Association to hang his pictures at the National Convention if found worthy by the judges of the same. This certificate and badge are to be in lieu of all other prizes. The Photographers' Association of America could also set up a standard of excellence, and when this is reached by a member a mark of distinction could be awarded by her to the member reaching that degree of excellence. This would serve as a mark of distinction and recognition at home or abroad.

"By the adoption of such a plan there will be formed a link connecting the National Association to all State Associations which will bring us closer together and give us strength as a profession in the world that we to-day do not have.

"All the troubles in the way of jealousies, accusations of unfair dealing, etc., incident to the prize system will be eliminated, and we will at the same time place our institution upon a more exalted plane.

"The members of State Associations will be induced to make exhibits who do not now do so, because there are so few chances of winning a prize, and a failure

to do so has a tendency to injure them in their own towns.

"A member of a State Association, after succeeding in securing a certificate of merit, which entitles him to a careful consideration from the judges of the National Association, will have a new incentive added to make him desire, not only an occasional trip to one of the National Conventions, but a continuous membership and a regular attendance upon every meeting that she holds.

"The great expense that we incur every year will be reduced, and instead of one member being made happy and a large number go away disappointed, every one will feel that justice has been done and will strive to make the required grade the next year.

"The harmony that is propagated and engendered at conventions will continue after adjournment, and we will be better satisfied in every way.

"It is, perhaps, well enough for newly born associations to offer prizes as a method of attracting members, and it may be necessary to their rapid growth, but the institutions that are full grown and are no more children should put away childish things and rise to a higher altitude.

"Let us be active, wide-awake members of our own State Associations. Attend the State Convention regularly for the purpose of rendering assistance to those who may need assistance or for the purpose of securing needed help that observation has taught us can be had at all conventions.

"Brother photographers, let us be up and doing, get closer together, and rid ourselves of every cause of envy, jealousy, and complaint.

"Build up our State Associations in such a way that our members will be the support and strength of the National.

"By so doing we will be happier and perpetuate both the National and the State Associations.

"W. S. LIVELY,
"Chairman Committee.

"Appointed by
"CHAS. W. HEARN,
"First Vice-President P. A. of A."

That the plan outlined in the report of the Convention meets with the approval of the Photographers' Association of America may be taken to be indicated in the following letter from Mr. C. W. Hearn, Vice-President of the National Association, whose endorsement offers food for serious thought on the part of photographers everywhere. Mr. Hearn's letter follows:

BOSTON, MASS., June 15, 1904.

MY DEAR MR. LIVELY,
Chairman Special Committee.

I write you in your capacity of Chairman of Special Committee, appointed by myself, to take charge of and work for the special interests entrusted to your care at Indianapolis.

I have received your report *and am much pleased with it.* As I believe this to be the first meeting of your State Association since last August, I wish you, as President of that Association, would bring the matter up, *and on the lines of your suggestions, etc.*, so that at St. Louis in October you can report as to Kentucky and Tennessee, and *have your own Association adopt your views, if they will,* as the best offered.

As regards other associations, it must be left to them to work out their own salvation and devise plans for their co-operation toward the support of the National, *but if Kentucky and Tennessee* adopted a good thing it would likely be adopted by other associations. With my personal best wishes for the success of your Association and artistic growth of its members believe me, very sincerely yours,

CHAS. W. HEARN,
Chairman of Officers State Association.

The favorable reception of this plan by the National Association may be still further assured by the recent action of the Indiana Association of which President C. R. Reeves of the National Association is an active member. In a letter received from Mr. Reeves referring to the action of the Indiana Association, he says:

"We dropped the medal system, and, instead adopted a system of certificates and badges. To all who are able to attain a certain standard a certificate will be issued, and to others who attain a higher standard a badge will be given. Each man who receives a certificate or badge will be received on equal footing, as say,

Knights Templar are received. When he meets with other photographers he will prove his standing by the badge he wears. We feel that this will stimulate endeavor and do away with jealousy between the winner and loser of prizes."

That our profession needs strengthening and building up all along the line is a matter that cannot be questioned. If the plan above seems to be the best by which this end may be accomplished let every State Association fall into line and work earnestly and honestly for the bringing of it about. Theoretically, we believe the plan is a good one. There will be difficulties in the way of its accomplishment, of course, but unless some better proposition is presented to the National Association in October we believe the plan should be recommended to each State Association, with a request that its policy of awards for the coming year be based upon this plan. In our judgment, almost any plan by which the co-operation between the State and National Associations could be secured would materially help the situation, and as we believe this Convention is the first to report favorably upon any such plan since the appointment of the committee last year at the Indianapolis Convention, it is worthy of being carefully considered.

There is a strong tendency toward a reawakening of interest in association and convention work throughout the country, and the present is perhaps the best time that could be chosen for considering and putting into execution some method by which the several State Associations and the National may be made to work together for their mutual interest and the material benefit of their members. It is to be hoped that this matter will come up for careful consideration and debate at the St. Louis Convention, and that there may be present a representative membership of the profession, at whose hands it may be disposed of wisely and well.

PRODUCING PHOTOGRAPHS IN BLACK SULPHIDE OF SILVER.

BY A. J. JARMAN.

IT is well known from a chemical standpoint that the sulphides of silver are bodies that possess great permanency. Silver, being a metal that readily combines with sulphur, produces two sulphides, one a brown and the other, the principal one, a black, represented chemically Ag_2S. This body is found when sulphuretted hydrogen is passed through a solution of nitrate of silver. The precipitate that is found is a very intense black powder which is found to be almost unchangeable, yielding only when submitted to an intense heat. It has been remarked many times that if photographs could be produced in black sulphide of silver such pictures would rival platinum for permanency. It is intended here to show how portraits or views or the copies of engravings can be produced in black sulphide of silver. Any subject drawn in line can be reproduced properly, every dot or mark, short lines, and every mark set in a picture by the engraver can be rendered with perfect fidelity, while in portraiture the drapery and half-tones show up in a manner that differs from any other silver process. Some years ago a process known as the collodion transfer process was brought into use to a very large extent. The image was made upon a clean washed sheet of glass, developed with a solution of pyrogallic and citric acids, fixed in a solution of hyposulphite of soda, well washed, then transferred to a sheet of stout, smooth paper by means of a gelatinized surface. The paper was squeezed down upon the collodion image, with the gelatine solution intervening. It was then allowed to dry, after which it could be lifted from the plate with the collodion image adhering. This kind of portrait formed an excellent basis for painting upon in oil colors, and at one time was in great demand. To obtain pictures in sulphide of silver it will be necessary to work upon somewhat sim-

ilar lines, although in one method to be described the silver may be entirely removed from the glass plate, then transferred to paper, either in the usual position or reversed.

It will be necessary in the first place to provide the necessary utensils and appliances. These are not at all expensive, and when once set up pictures may be produced with ease and certainty. The process being worked with wet collodion, it will be necessary to provide a glass dipping bath to contain a solution of nitrate of silver, also a dipper upon which to rest the plate when it is lowered into the nitrate of silver solution. The glass dipping bath and dipper can be readily obtained at any large photographic stock dealer's. A list of the necessary material is given herewith to enable any one desirous of practising the process to commence right and be sure of success from the commencement.

List of Materials, Chemicals, and Utensils Necessary.

Three dozen sheets of double transfer paper.
Half a pound of nitrate of silver, c.p.
Two pounds protosulphate of iron.
One pound photographic alcohol.
One 8 x 10 glass dipping bath and dipper in wood case.
One pound sulphuric ether, sp.gr. 720.
One ounce pyroxiline.
One ounce castor oil.
Half pound India-rubber cement.
Half a pound of "benzole."
Half pound sulphide of ammonium.
One gallon distilled water.
Half pound iodized collodion.
Two ounces nitric acid, c.p.
One pound acetic acid.
Two dozen pieces of plate glass from 4 x 5 to 8 x 10, about three thirty-seconds of an inch in thickness.
Half pound strong water ammonia.
Half a pound of sulphate of copper.
Four ounces of bromide of potassium.
One ounce white wax.
One glass funnel (plain), 6 inches diameter.
One glass funnel (plain), 3 inches diameter.
Half pound absorbent cotton.
Two dozen filter papers.
One hydrometer, for testing the nitrate of silver and other solutions.

Having the above material, etc., at hand, make up enough silver solution with nitrate of silver and distilled water to nearly fill the dipping bath, which will probably be about thirty-five ounces fluid measure. When the nitrate of silver is dissolved (which should be about three and one-half ounces), test the solution with the hydrometer. The strength should be from 35 to 40 upon this instrument, which means thirty-five to forty grains of nitrate of silver to one fluidounce of distilled water. Having made up this solution in a clean bottle, add one fluidram of c.p. nitric acid. Then shake the bottle well. This sensitizing bath must be very acid, so that extremely clear transparencies or diapositions may result. Just as soon as the solution has been acidified clean out the dipping bath well, then pour into it the silver solution just prepared. Now coat a clean glass plate, 5 x 7, with the iodized collodion. The coating is done by pouring a small pool of the collodion upon the middle of the plate; then, by tilting the plate until the collodion has flowed to each corner, drain the excess back into the bottle. Allow the plate to stand for half a minute, then place it upon the dipper and lower it into the nitrate of silver bath. The plate must remain in the bath, say, all night. This is to allow a small quantity of the iodizing salts to dissolve into the silver solution. The next day the plate must be removed. The silver solution is now ready for use. This bath must be left covered when not in use. Now prepare the following collodion and mixing solution, which is to be used especially for this particular work:

STRIPPING COLLODION.

Alcohol (Photographic) . .	3 ounces.
Pyroxiline (Gun Cotton) . .	25 grains.
Sulphuric Ether (720) . .	3 ounces.
Castor Oil	18 drops.

Add the pyroxiline to the alcohol, then the ether, when, after well shaking, add the castor oil.

WAXING SOLUTION.

Sulphuric Ether	2 ounces.
White Wax	20 grains.

Cut the wax into thin shreds, add to the ether. Cork the containing bottle tightly. Shake the mixture until the wax has become dissolved. Label the bottles containing the above preparations "Stripping collodion" and "waxing solution." Mix in another bottle two ounces of rubber cement and three ounces of benzole. Be sure that the benzole employed is what is known as coal-tar benzole, not the benzine made from petroleum. The solvent action of the tar benzole, the true C_6H_6, is infinitely superior to the other. This may be set aside ready for use after thorough admixture. Now make up the following solution for developing and intensification of the image:

IRON DEVELOPER.

Protosulphate of Iron . .	½ ounce.
Distilled Water . . .	16 ounces.
Acetic Acid	½ ounce.
Alcohol (Photographic) . .	½ ounce.

For intensification make up a stock solution of ten or twelve ounces of sulphate of copper in one bottle, of the strength of 70 on the hydrometer. Also a solution of bromide of potassium registering 35 on the hydrometer These solutions will keep indefinitely if kept in separate bottles. The developer will act at its best when a day or two old. Thoroughly clean all the glass plates by washing them in a warm solution of common washing soda. Rinse them under a faucet, place them in an acid bath composed of muriatic acid, one ounce to water forty ounces. Make up a mixture of the albumen of one egg to thirty-two ounces of distilled water. Filter the same after adding one dram of stronger water ammonia. Pour some of this into a four-ounce graduate; then take the plates one by one, rinse them under the faucet, drain for a moment, and pour a small quantity of the albumen mixture over the plate. Drain off the excess, then place the plate in a clean rack to dry. In preparing these plates see that the albumen is poured over the smooth surface, which is almost invariably that opposite the one over which the glass cutter ran his diamond. About half the number of pieces of glass plates may be prepared in this way, then placed aside for use. The remainder of the plates, or as many of them as may be required for immediate use, must be prepared as follows:

Waxing the Plates. Clean well the plate intended for use by draining off all the moisture, then rub dry with a piece of clean white rag. Take a piece of rag, fold it up into a little bunch by bringing the four corners together. Moisten the centre with a small quantity of waxing solution, then rub this well all over the face of the glass plate. Polish the plates off with a clean rag. Place them in such a way that their waxed surfaces are protected from injury.

The glass plates now being ready, proceed to make a picture for direct transfer from the glass by coating a waxed plate with the iodized collodion, draining the excess into the collodion bottle, taking care to rock the plate backward and forward while the collodion is draining, so that the film will be even. This done, place the plate upon the dipper and lower it with one steady movement down into the nitrate of silver bath. (Of course, these operations are performed in the dark-room.) Allow the plate to remain in the bath for about two minutes, or three minutes will do no harm. After this, remove the plate, taking care to handle it by one corner only, or, if it can be spanned by the thumb and middle finger of the left hand, then remove it by this means. Stand it by corner upon a piece of blotting paper. Then wipe the excess of nitrate of silver off the back of the plate with a piece of soft blotting paper.

The plate is now ready to be printed from the negative, which has previously been varnished and provided with a mask of waxed paper covering about three-eighths of an inch of its surface on all four edges. The negative is now placed in a printing frame with its varnished and masked side uppermost, and the plate still wet with nitrate of silver is placed in contact upon it. All this work in the dark-room should have been done under an amber light.

Lay over the plate a pad of black cloth. Fix the back of the panel and make the required exposure. If an incandescent lamp of 16 candle-power be used, stand the frame away from the light about four feet. Twist the frame around during the

exposure two or three times, and count eight seconds. Turn down the light, open the back of the frame, remove the plate, pull off the mask if it sticks, then as quickly as possible pour over the wet surface of the plate a small quantity of the iron developer. Holding the plate by one corner by the finger and thumb, the developer must be poured on from one end in one continuous sweep. About one ounce of developer is all that is required to do this. Rock the plate so that the developer and wet silver solution pass to-and-fro over the surface two or three times. The image will quickly appear. Just as soon as it is only moderately well out wash it at once under a gentle stream of water from the faucet. Take care during this operation, or the film may become injured. The moment the plate has been covered with water the light may be turned up or a window opened, for once the developer has been washed off the plate it is no longer sensitive to light. All the operations that follow may be performed under ordinary light. As soon as the plate is washed, which is accomplished in half a minute, it must be fixed, and although a concentrated solution of hyposulphite of soda may be used for this purpose, a mixture of cyanide of potassium of a strength of twelve grains to one ounce of water is yet better. This may be poured over the wet surface and returned to the graduate, or, better still, a small wide-mouthed bottle of about six-ounce capacity. When the picture has become clear, that is to say, when all the iodide of silver has been dissolved out of the film, it must be washed again in a very gentle stream of water for half a minute. Stand the plate aside by laying it down, face uppermost, upon the top of a graduate, then mix the following:

BLEACHING SOLUTION.

Sulphate of Copper Solution at 70	2 ounces.
Bromide of Potass. Solution at 35	2 ounces.

Pour this mixture upon the plate two or three times, returning the excess to the bottle. The image will become intensely white. Wash the plate well after this for about one minute, then pour over the bleached surface a solution of nitrate of silver of the strength of ten grains to the ounce of distilled water, returning the excess of solution to the bottle. The surface of the bleached image will now become a dark-gray color. Turn the plate over, see that it is uniformly gray. Wash for half a minute, and then make up the following mixture to convert the silver image into sulphide of silver:

Sulphide of Ammonium . .	1 ounce.
Water (ordinary) . . .	4 ounces.

(This mixture should be made and used outside the dark-room, because of the smell of sulphuretted hydrogen that is given off.)

Pour a little of this mixture all over the plate, drain the excess off down the sink, and wash well under the faucet. The entire image upon the plate is now converted into the black sulphide of silver. Just as soon as this has been accomplished pour over the plate a mixture of nitric acid, 1 ounce, water 6 ounces. This is to keep every part of the high lights quite clean and clear, because it will be seen that the print that has been obtained from the negative is a wet collodion diapositive. While the image is still wet, or only surface dry, a piece of the double transfer paper should be soaked in cold water for several minutes, then placed into warm water until the surface feels slightly slippery. The plate is then flooded with cold water, and the transfer paper laid upon its surface with the film side down. Grasped by the two top corners, they are held so that the water runs from between them. In this position they may be clipped and suspended to dry. As soon as dry, which will take several hours, the plate may be warmed slightly, when the collodion film with its sulphide of silver image will leave the glass and be transferred perfectly to the sheet of paper. It will consist of pure whites and blacks, and will present all the appearance of a carbon print with a collodion surface. The picture will be reversed, unless it is made from a reversed negative in the first place, or by using a film negative, then making the collodion print from the reverse side.

If prints are to be produced which can be stripped from the plates and mounted independently they must be made upon the albumenized plates previously described, as follows: Proceed to collodionize one of

the albumenized plates the same as before, and sensitize it in the nitrate of silver bath. Carry out the process of making the exposure in the printing frame, then develop, fix, wash, and intensify as before described, and transform the image into sulphide of silver by a wash of diluted sulphide of ammonium. Also flood the plate with a weak nitric acid solution, then wash well and allow the plate to become perfectly dry. It must now be poured over the entire surface of the image with the thinned down rubber cement, allowing the excess of solution to drain back into the bottle. Then place it in a clean rack to dry. Just as soon as it is quite dry, which will be in about half an hour, this rubber film must be flowed over with stripping collodion, this being accomplished in the same manner as described for coating the plate, draining the superfluous collodion into the bottle. The plate may now be stood in a rack and put into a warm place to become perfectly dry. As soon as the drying is complete take a penknife and cut the film in a straight line at the sides and ends by using a small straight-edge. Cut the film to a size slightly larger than required when finished. Now place the plate in a tray containing a mixture of acetic acid, four ounces, water 6 ounces. Allow the plate to stand in this liquid for about five or ten minutes. It will then be found that by lifting one corner of the cut film by the tip of a knife the film can be lifted completely off the glass plate. It should at once be placed in a tray of clean water to wash off the excess of acetic acid, then laid down upon a piece of double transfer paper that has been softened as previously described. The film may then be pressed carefully down upon the softened surface by means of a small squeegee made of a very thin piece of sheet India-rubber, carefully pressing the film down from the centre, drawing the squeegee gently to the sides so as to wipe out all excess of liquid. The print may now be suspended by a wood clip to dry. When dry it may be trimmed and mounted just the same as any ordinary photograph.

The film that has been removed from the glass is very tough and strong. It can be handled freely without fear of injury. In some cases it will not be necessary to intensify the image; for a portrait, intensification is best omitted. It will also be seen that when the film has been removed from the plate it can be transferred to its final support in the correct position. The object of stripping is to accomplish this purpose. Although this description of producing photographs in sulphide of silver may seem somewhat lengthy, it will be found in practice to be comparatively easy, the various operations requiring no longer time than is usually occupied in the production of carbon prints, which process it resembles in many particulars.

The whites of the transferred film will not be quite so brilliant as in the print transferred direct from the plate, because of the slight color given by the rubber varnish. The color is, however, very slight, and does not prove at all detrimental to the finished picture.

These intensely black sulphide of silver photographs can be transferred to porcelain or opal glass in just the same manner as to paper, using a very thin substratum of gelatine, of a strength of twenty grains of gelatine to one ounce of water, or allowed to remain upon the glass plate upon which they were developed to form a perfectly black-and-white transparency.

It is not generally known that rich, warm tones, varying from Bartolozzi red to standard brown, may be obtained by development alone on most of the brands of gaslight paper now on the market. Warm sepia can be secured with uniformity by trebling the requisite exposure for black tones and by diluting the orthodox metol-quinol developer with three times its bulk of water. The development should be stopped immediately the desired tone is reached, when a rich print should result, free from the washed-out appearance so common with many methods recommended for obtaining warm tones. By quadrupling the exposure and further diluting the developer a good Bartolozzi red may be got. A variety of colder tones are at command by varying the exposure above the normal and by dilution of the developer in proportion.—*Photography*.

THE PRESENT STATE OF THE PHOTOGRAPHIC LABOR MARKET.

AN editorial article reprinted below from a late issue of the *British Journal of Photography* throws a flood of light upon the conditions of the photographic trade in England at the present time. The facts cited and deductions arrived at indicate a deplorable state of affairs, and one that we shall do well to avoid in this country, if in any way possible. Thoughtful men are already stirring themselves to devise means for raising the standard of workmanship that must be acquired to enable newcomers to enter our ranks and also to guide, if not further to regulate, the paying of wages and to securing and placing of competent help.

Whether the plans under consideration toward this end are destined to solve the problem or not, time alone will tell; but when we consider the comparatively small number of photographers, whether employers or employed, who derive even a fair living from their business, it at once becomes apparent that some sort of a tonic is of vital necessity.

May it not perhaps be possible, however, that the medicine is being given to the wrong patient, and that the same amount of time, effort, and expenditure devoted to the buying public on both sides of the water may be made to develop a greater demand for good photographs, and thus produce the desired result with improved conditions for the employer, the employed, and the public itself.

One thing that can scarcely be denied, and that we believe has a strong bearing on this view, is that in this country, at least, those cities in which an appreciation of good photography has been best established are the ones which to-day support the largest number of prosperous studios. If this is so it indicates clearly that the solution of the problem lies largely in the hands of the photographer himself, whether here or elsewhere.—[ED. W. P. M.]

It will be remembered that some weeks back we directed attention to the present state of photography, with reference more particulary to employés or those who might be contemplating entering its ranks professionally.* We then suggested that parents and others should hesitate before apprenticing young people to a business in which, at the present time, the labor market is very much overstocked. Also that others of a mature age should duly consider the matter before entering the business. Since that article was written we have been making inquiries in different directions, and we are sorry to say that we find things in an even worse condition than we had surmised they were. We have more than once referred to the fact that the advertisements appearing in our pages—"Situations Wanted," and "Situations Vacant"—week by week, give a pretty fair indication of the state of the labor market. So they do, but only to a limited extent. A better criterion is the number of applications that are received by those who advertise for assistants. Many of these are addressed to our office, and it is surprising the number of letters that come even when what may well be classed a quite nominal salary is offered.

To give some idea of what some persons will, or perhaps are compelled to, accept for their services we will cull from some of the advertisements that have appeared during the past few weeks. First, "Situations Wanted:" "As general assistant—first class operator; good printer all papers; good reference; ten years' experience; salary 25*s*." "General assistant—ten years' experience; four years in last situation; salary 30*s*." Here is another: "Young married man with twelve years' experience; good operator, retoucher, etc.; copyist and enlarger; reference to present employer; 30*s*. a week." We have specially quoted these cases out of many others, because in each the advertisers have had ten years' or more experience, and have good references, and yet they are seeking employment at what, at one time, would have been considered most ridiculous salaries. It does not say

* This article will be found in the July number of this MAGAZINE.—[ED. W. P. M.]

much for the future of employés if, after ten or twelve years' experience in the business, the above salaries only can be commanded.

Now let us take a glance at the columns referring to "Situation Vacant," and see the salaries there offered by employers. Here are a few examples: "All-round man; must be energetic; wages £1." "First-class operator and retoucher—clever at posing, and good with children; good worker in black and white preferred; wages £1 5*s*. Fancy all these requirements for this sum. "Wanted, general assistant; good retoucher; salary £1 a week." "Required, competent to supervise operating, developing, thorough all-round knowledge essential." For these qualifications the handsome sum of £1 a week is offered. "Wanted, general assistant, all-round, and not afraid of work; salary 25*s*." The "not afraid of work" would suggest that plenty of it is expected for the munificent salary offered. "Wanted, out-door operator; must be quick and understand his business; salary 30*s*." "Smart retoucher and operator, not under 25, for branch; salary 25*s*."

The advertisements just quoted indicate the salaries that some employers expect to get fully accomplished and skilful employés for, and, presumably, they do get men that answer their purpose for the sums named, for we find, unfortunately, that there are some anxious for employment at those rates. This brings us back to the subject we have more than once dealt with—namely, what is the future prospect for photographic employés?—more particularly if we take into consideration the assertion, often made, that a man is "too old at forty." It should be mentioned here that in the majority of instances where these low salaries are paid Sunday work is required, hence the employé has to work seven days a week for his miserable pittance, which is far less than an unskilled day laborer is, by his trades union, allowed to accept.

We may add another illustration of the present state of the labor market. Not long ago an advertisement appeared in our columns, and a similar one in those of a contemporary, for an experienced operator to take views for picture postcards. We are informed that the two advertisements brought something like two hundred replies from persons anxious for the appointment. A very large proportion of the replies, we are informed, were from skilful photographers of long standing, and a not inconsiderable number from amateurs who are evidently intent upon entering the profession. Be that as it may, it shows that, apart from them, there are at present plenty of highly skilled workers anxious for employment.

In the foregoing we have only been referring to the male sex. If we turn to the advertisements of female workers we see that things are even worse, as witness the number of receptionists, retouchers, spotters, and the like who at the present time are seeking engagements. In the "Situations Vacant," for females, the advertisements are chiefly for apprentices to learn the business with or without premiums, but without payment in the shape of wages—or with merely nominal ones—for a term of, usually, three years. What is their prospect after they have served their term of apprenticeship? Very poor, we opine.

In the above it may be thought we have taken a pessimistic view of the situation, but the fact is it exists. Will it be improved in the future? Improvements are being continually made, alike in processes, material, and appliances, all tending to simplify the working, so that less skill is required in the working of them. All this simplification in working tends to more competition, particularly in the labor market. Of course, the salaries referred to above must not be taken as typical of those paid by high-class houses to gentlemen with high artistic abilities, but here even the labor market is over well supplied, and the salaries now paid are nothing like those that obtained in former times, and there is still a downward tendency in this direction. We once more advise those who contemplate entering the ranks of professional photography to hesitate before taking the step, for if they throw up their present vocations they may find to their cost that in grasping at what may prove a shadow they have lost the substance.

PHOTOGRAPHY FIFTY YEARS AGO.

(Continued from page 38a.)

COLLODION PHOTOGRAPHY.

When the *Liverpool Journal* was first published the wet collodion process was in use, but principally for glass positives, which were then being made in great perfection, and some of them vied with the daguerreotype in quality. Its use for negatives was, however, greatly restricted by the action of the late Mr. Fox Talbot, who claimed that it infringed his patent for calotype, which included making positive prints from negatives. Talbot obtained one or more injunctions restraining its use, and finally brought an action in the Court of Common Pleas against a photographer, trading in Oxford Street as "Laroche," for infringement. The case excited great interest among professionals, and they contributed a large sum toward the cost of the defence. The trial lasted some three days, and in the end Talbot was defeated. Then collodion became the process of the day, and soon replaced the daguerreotype.

PRINTING AND TONING.

The paper at that time employed for prints was mainly the plain salted paper, sensitized with ammonio-nitrate of silver. This paper would not keep many hours, and had to be used up the day it was sensitized. Albumenized paper was then in use, but it was what would now be termed a matt paper, inasmuch as the albumen employed was always largely diluted with water, its object being mainly to fill up the pores of the paper, and thus keep the image on the surface. The bath then in vogue was a combined toning and fixing one, consisting only of hyposulphite of soda, chloride of gold, with usually a little nitrate of silver added.

MODIFICATIONS OF THE WET COLLODION PROCESS.

With the collodion process at that time the plates had to be exposed and developed directly after they were sensitized, hence, when working in the field, a dark tent and the requisite chemicals had to be carried in addition to the weighty and cumbrous apparatus. What a contrast with the present-day system with gelatine plates! The serious inconvenience of having to prepare the plates where they were used led to improvements being made so that they would remain moist for a day more. In May, 1854, Messrs. Spiller and Crookes published such a method. Sir William Crookes was at one time the editor of this *Journal*. Their method was to apply to the plate, after it was sensitized, a deliquescent salt, such as the nitrate of zinc. With this treatment the plates would keep good for several days. About the time these gentlemen published their method the late Mr. George Shadbolt published his method of accomplishing the same end. He, after sensitizing the plate in the usual way, flowed it over with diluted honey, which retained the film in a moist condition. This was known as the "honey process."

DRY COLLODION.

Moist plates had their inconveniences, not the least of which was that they had a great affinity for dust, and the dust produced spots. Moist plates were soon superseded by dry ones. The plates, after sensitizing and washing, were coated with various organic substances, the names of which are legion—nearly everyone had his own particular pet. Thus we had processes known as the raspberry vinegar, oxymel, golden syrup, beer, beer-albumen, tannin, malt tea, coffee, and many others. The last-named was a very favorite one with the late Mr. Traill Taylor. All these processes were based upon keeping the pores of the collodion film open with an organic substance so that it would be readily permeated by the developer. Several other modifications were introduced, but they were all more or less dependent upon the same principle. These dry plates were all far less sensitive than the wet plate, but they were used almost exclusively by amateurs, who, of course, had to prepare them for themselves. In or about 1862 the alkaline system of development was introduced, and that is what is now universally employed except for wet collodion plates.

CARBON PRINTING.

It was at a meeting of the London Photographic Society (now the Royal), 1859, that the late Mr. John Pouncy first published the gum-bichromate process as now worked. It was then known as the carbon process, but it met with little favor at the time. A few years ago this old process, as we all know, was unearthed and given its present name, and it is now a favorite process with a certain school of photographers. In 1864 Mr. J. W. Swan, of the same society, published his process, which is the carbon process of to-day.

EMULSION PHOTOGRAPHY.

In 1864 the late Messrs. Sayce and Bolton, in this *Journal*, published the first emulsion process. This was destined to, and afterward did, entirely revolutionize photography. In this process, as then published, the plate was first coated with the collodio-bromide emulsion, then washed to get rid of the haloid salts, and afterward flowed over with an "organifier," such as tannin or the like. It may be mentioned that in 1885, on the day of the twenty-first anniversary of the first publication of the process, the Photographic Club held a dinner to commemorate the coming of age of emulsion photography, at which Messrs. Sayce and Bolton were the invited guests. They had been made honorary members the week before. Inconvenient as was this process as compared with the washed emulsion one, it was very largely employed. In the photographic section of the Victorian Exhibition, in 1897, it may be mentioned that an amateur, Mr. Osman R. Green, exhibited some very fine 24 by 18 inch landscapes, taken direct in the field, in 1867, by this process on plates of his own preparation. Mr. Green, at that time, was a prominent member of the Liverpool Society. Few amateurs of the present day, I imagine, would care to repeat Mr. Green's work.

COLLODIO-CHLORIDE.

Somewhere about the time that Sayce and Bolton published their process, the late Mr. G. Wharton Simpson, then editor of the *Photographic News*, published his collodio-chloride emulsion process. The paper was afterward made commercially in Germany, but it did not take to any great extent with photographers here. Mr. Bruce, of Duns, N. B., however, was an exception, for he used it exclusively in his business for thirty years or more, but he had to draw all his supplies from Germany, where most of this paper still comes from.

WASHED EMULSIONS.

In 1874 the late Mr. W. B. Bolton, for many years editor of the *British Journal of Photography*, published a washed collodio-bromide emulsion process, which in principle is precisely the same as that in the present day gelatine processes. The collodio-bromide emulsion was poured into a dish and allowed to set. The pellicle was then broken up and washed, to free it from the haloid salts, and then dried. It was then redissolved in ether and alcohol, when it was ready for use, and was largely used until it was superseded by the gelatine dry-plate process.

GELATINE PHOTOGRAPHY.

Some three years or so before Bolton published his washed emulsion process the late Dr. R. L. Maddox, in the *British Journal of Photography* (see volume for 1871), published a gelatine-bromide process for both plates and paper, and left with the late Mr. Taylor, the then editor, specimens produced by it. This process, after improvements by others, has now practically superseded all others. For some few years after Dr. Maddox's publication the process lay in abeyance until it was taken in hand by Burgess, Kennet, Bennet, and others, including Mr. Bolton. Kennet, I think, was the first to put plates on the market. It was not till the early eighties that professionals adopted them regularly for their daily work. I need not say anything about what has taken place since that time, as the majority of my readers are perfectly familiar with the later phases of the art.

A RETROSPECT.

In the foregoing I have endeavored to point out in as concise a way as possible

the state of photography at the time of the first issue of this *Journal*—and for some years afterward—and the part it has played in its advancement and, more particularly, by those immediately connected with it. Now, looking back, it is a little difficult to find anything done now that was not done in the earlier days of the art. Take an instance. In 1851, at the Royal Institution, Fox Talbot, by a modification of the old slow albumen process, took a picture, which for instantaneity it would be hard to beat now. Some printed matter on a rapidly revolving wheel was illumined by the discharge of a Leyden battery, yet the lettering showed distinctly in the photograph. The moon was successfuly photographed by the daguerreotype process. Collodion, albumen, collodio-albumen, and dry collodion negatives were quite equal to modern gelatine ones. About the early sixties the late Mr. England and the late Mr. Valentine Blanchard produced, by the wet collodion process, instantaneous street scenes in Paris and London that have not been surpassed. My friend, Mr. Frank Haess, about that time, or before, took a series of photographs of the animals in the "Zoo" that will hold their own against most modern work of the same subjects. Breaking waves, and on large plates, too, were also taken by many of the older workers, and they will yet compare very favorably with those taken on gelatine plates. But at what trouble, cost, and inconvenience were those results obtained!

Cumbrous portrait lenses had to be employed, and then the work could only be done in the best of light. When this is considered, these results may be looked upon, successful as they were, very much in the light of *fours de force*. Now the same results are daily obtained with the most portable of apparatus, and with lenses of no very great rapidity. Furthermore, all the plates employed, and the paper for printing, are now to be purchased ready for use. What a contrast! Was such a thing dreamt of—even by the most sanguine photographer—when the *British Journal* was first published, just fifty years ago?

PROFESSIONAL PORTRAITURE.

BY CHARLES W. HEARN.

(Continued from page 364.)

XI. BALANCE OF LIGHT AND DARK.

IN the June issue of this MAGAZINE, page 265, we advised dividing some good carbon reproductions of famous paintings and some of the photographer's best work into four equal parts, by means of a thread tied to tacks inserted at their exact marginal centres, both vertically and horizontally; we also also advised keeping them at hand to serve the reader as subjects for occasional study. To the student as well as the expert photographer this will be found of the greatest benefit, in the study of balance in all its forms. We will suppose that this course has been followed and is still continued through the present chapter.

A study of the world's most famous portrait artists will reveal the fact that every square inch of canvas, even apparently the least important, has been painted with a definite object in view; none of it is the result of haphazard effort. Beside the quality of texture, values, etc., in the figure and accessories, the artist had some reason for the lights and darks in their various degrees of intensity and power, in the *whole* of the painting, not exclusive of the background. In so far as they may relate to the painting of the figure or other parts that demand drawing, the fact, of course, is apparent to all; but the fact that those parts of the picture seemingly insignificant in themselves also received the closest of study is by no means so much appreciated by photographers as a class.

Passing over other pictorial principles as not material at this time, we would call attention to the *quality* of *light* and *dark* in these pictures, by which we mean their proportion to each other with all the intermediate shades.

It will be noticed while studying these paintings that they all come very closely to a mathematical proportion when we consider the quantity of light and dark and middle tone in which these pictures were painted.

Velasquez, for instance, will be found in his works to have divided his pictures into one-fourth light, one-fourth dark, and one-half middle tones. Rembrandt will be found to have varied this a bit in having a little more dark than middle tone. Franz Hals, on account of the strength of his strong lights, rather inclined to use more than one-fourth light, full proportion of dark, and little less of middle tone; but through them all will be found a very close observance to the proportions above mentioned. The publication of this fact was first given to the world by that master painter himself, Sir Joshua Reynolds, in his discourses to his students. These lectures are published and on the shelves of almost all first-class libraries.

Since the works of these famous artists have stood the test of centuries of criticism, and to-day stand as the goal of attainment by their devotees, is it not about time that we, followers of the infant art of photography, in whose care its development and advancement is temporarily placed, take to ourselves the lessons they teach, and profit by their successes?

Let us now for a moment look at these pictures, both the reproductions and our own, which we have placed on the boards and divided by the threads as mentioned at the commencement of this paper.

How many of our own shall we find to be based upon a proportion anywhere near like one-fourth light, one-fourth dark, and one-half middle tone? Is there as much light as dark and as much middle tone as both combined? The chances are, if this has not been specially striven for, that the proportions vary widely in almost every portrait.

Photography should not attempt to have a standard or a scale of its own in this matter of balance of light and dark. We have had enough haphazard work of this kind in the past, and it is better to adopt that of the artist. The possibilities in our craft are not so far removed from the painter's art that we should in consequence view their standard as an impossibillty for ourselves.

Much has been said by the less liberal among the professionals savoring of ridicule of all the work of the amateur, which ridicule is emphasized the more advanced and cultured the amateur may be. The leaders among the professionals, however, whose work tends toward what may be termed the "modern school of photography," do not by any means take this decided stand against the majority of the work produced by the more advanced of the amateurs. They at once recognize that certain desirable qualities, among which is the one of balance, are often very closely obtained in their pictures. They do not look with favor upon insane productions where it seems to have been the aim of the producer to run amuck in his applications of certain principles. There would be as much sense, because we like butter upon our bread, to spread it on an inch or so thick. The result would be to make us sick, and that is what some of these overbuttered things do to the professional.

The writer must in frankness and justness state that this overdone work is *not* made by the *better class* of the amateur or semi-amateur class, but only by the ignorant and would-be follower.

As a whole, it will be noticed that a majority of their *good* pictures possess tone values, atmosphere, balance, etc., to a great degree.

Let those of us inclined to be more liberal disabuse ourselves and others of the thought that pictures to be artistic must of necessity be *freaks*, for such is not the case.

Let us imagine an ideal photograph made by any one of several professional photographers, easily brought to mind by writer or reader, let us suppose that, besides being an artist, he is also a good technician in making negatives and prints. He has made a pleasing arrangment, pose, etc. He has balanced it by line, vertically and horizontally, light and dark, etc. Any call for freak work here? No!

He has attained color values and success in tone, but has not run amuck. Any trouble here? No!

He has preserved rhythm of values, rhythm of measure, rhythm of line.

Nothing freakish here, only showing delicate handling, so often missing in ordinary portraiture.

There is absolutely nothing more in an artistic photograph to displease the cultured photographer than there is in a fine painting. The abominations that one sometimes sees which possess certain earmarks of merit, result from a coarse, clumsy carrying out of various art principles to an *extreme* in order to attract attention to them. They rank in art as a coarse man or woman in society ranks with gentle folks.

Art in all her relations appeals to the highest and noblest, is modest and unassuming. She is clothed in simplicity, quiet in her demeanor, retiring in her disposition, be it in a painting or a production of the camera.

HOW TO OBTAIN THIS BALANCE OF LIGHT AND DARK.

To gauge the balance of light and dark it should be based upon some tone about half-way between; its attainment is greatly facilitated by delicate lighting; great contrasts unless in the hands of a master seldom produce success.

It will be seen that with a large quantity of *very black* background in a picture, or of very white, it is going to be an impossibility to balance on this basis of proportion. In the former case, if it be a man with dark clothes you are going to have entirely too much dark, and even supposing the coat is lighter the quantity of middle tone will be deficient, and the face, whether lighted well or softened, will not produce its proportion of light. If with this end in view it be strongly lighted it will either be void of color value, "jump" at you, or both. This style of picture cannot he balanced. If the background is blanky white, the face practically the same, and the subject, say that of a lady in white, no matter whether it be a three-quarter figure or a bust, the chances are still, because of its whiteness, against its being balanced unless handled with extreme care.

Suppose, on the contrary, the black ground of the man's picture as a whole is not so deep a dark, but *broken* up some without any strong but rather low-toned lights, with different values, with some few deeper darks, you would have in the first place, as a starter, a ground that was practically balanced in itself. Then the lighting of the man—some attention toward completing the light on the ground would make it comparatively easy to obtain this light and dark balance. You would not in that case have this preponderance of unfeeling, unintelligent mass of black background to overcome, which outweighs anything you can bring up against it in the way of a portrait.

With the very white ground, discard it or use the broad light, and make delicate light work, so the whole scheme will be of a delicate order. As color values are hard to produce in this case, however, it is better to use a cream white ground which will show some quality; then the result, if the whole arrangement is carefully planned as regards the suitability of the subject, dress, method of lighting, etc., will be perfect balance of light and dark.

It is by no means the intention of the writer to convey the impression that the whole gamut of light and dark should be apparent in all portraits. Whatever the scale of contrasts may be in the picture, whether it be 20, 50, or 100 per cent., select the mean between the two extremes, and build up your proportion of light and dark upon this basis. When you see your subject and the photographic quality of the complexion, hair, and clothing, decide upon a suitable ground to use, and with a little care this balance in connection with tone qualities, values, etc., is comparatively easy to obtain after working from this point of view for awhile. If this is studied more the standard of our photographs will improve greatly. It seems to the writer that this is one of the most generally misunderstood things in our work, and almost all of our pictures are deficient in this respect, even when otherwise very excellent.

A subtle sense of pleasure comes to all of us who desire improvement in our work when we see a well-balanced picture, and whether we know and appreciate the reason or not, the effect upon our spirits is none the less evident.

I strongly advise my readers to look up pictures and apply this theory of proportion

as above given. Cultivate the habit till it becomes second nature to look for it whenever you see pictures. Educate yourself first by looking at standard works of art till you have acquired a very good idea of the subject, then later apply it to your own and other photographs that you come across.

HOW THE EQUIPOSE OF LIGHT AND DARK ONCE OBTAINED MAY BE DESTROYED.

In reviewing the above it appears advisable to caution the student against destroying this balance of light and dark when once obtained by subsequent treatment of the negative or print.

In a former paper we mentioned resorting to some mechanical or chemical means to subordinate certain parts of the picture that may be necessary to obtain "Concentration of Interest." Of course, if the operator is sufficiently expert—always to obtain this and other desired qualities in his negatives without this subsequent attention—then he is a master to whom these papers on this and other subjects are of no value, for he certainly is far in advance of the writer's ability or knowledge. We believe, however, that this power is granted to only a few. The factoral development previously mentioned, if persisted in, will, in the nature of things, enable us to more quickly advance to that stage than by any other, or at least it so appears to the writer, as it forces us to rely more upon our work under the light than if we felt we could correct our errors or lack of judgment during the development.

Suppose with care we have produced a negative that the proof shows us as very well balanced as regards this proportion of light and dark. To correct some things that appear too prominently we resort to the reducer, alcohol or knife, as it may be. It is very easy to change this balance if *masses* are obliterated entirely. If slight changes are made little effect will be produced. Some considerable increase in middle tone is less objectionable than the same in the two extremes of contrast. The painter works here and there to produce certain effects, then has to add or soften a light or dark to balance it again, and until the final picture is completed. His work is often laid aside and then taken up again. He is continually watching that the equipose of light to dark, etc., is preserved. It is a source of continual study until finished, when he hopes to obtain unity of the whole.

If you wish to balance a strong light, *don't* at once decide to *subdue* it. You will then be called upon to change nearly everything else in the picture. Consider, first, if you can't as well balance it by little contrasts of dark near at hand, or possibly further removed, for, although not large in mass, they give weight.

Among the Dutch paintings it is common to find little lighter places in the darks, and little darker places in the lights, to help the contrasts.

A WORD OF CAUTION.

The writer thinks it advisable to add a word of caution against the use of chemicals or other methods of reducing which have ruined many negatives because it has been overdone.

In response to a request, one of our most able and talented Ex-Presidents sent a MS. to me for the *Association Review*, the official magazine of the P. A. of A. In it the writer makes a good point in his criticisms of some of the ultra effects of "flatness" frequently seen, which in a nutshell constitutes much of the objection raised by the professionals to this style of work.

This effect, when not the result of lack of technical knowledge in producing pictures, is probably caused by a desire on the part of the maker to get the picture "in tone," being also printed dark to get color values, elimination of excessive detail, etc.

When subordination alone is resorted to, and the photographer relies upon a continual process of *lowering* all parts of his picture, it gets to be a "fad" with him, and he quickly subsides into the freak school, the pictures getting flatter and flatter day by day.

Don't do this; learn to build up and not destroy. Don't take for your ideal those paintings mostly made by the more modern artist, which, even if they have been accepted and exhibited at salons, are mostly "studies" in low tones, or "studies" in

browns, reds, grays, etc., and are mostly painted for painters' benefit, to show the ability of the artist in values, etc. They have not lived, and many which will, as the result of the painters skill, will only do so for that reason.

While trying to obtain pictorial principles in our pictures, let us exercise com mon sense in our results. When we make studies, label them as "studies" in this or that, but for our more serious work, let our aim be to make portraits that deserve to live for their true artistic value.

(To be continued.)

NEWS AND NOTES.

Plate Fogging. The *British Journal* says: A potent cause of fogging of plates, which, though we have frequently called attention to it, is still but little recognized, is one or more of the many forms of black varnish used to blacken the insides of cameras and slides. The persistence of this fogging effect, as we know to our cost, is almost incredible; we possess slides which have not been varnished or otherwise treated for years past, which have purposely been left open and exposed to a free current of air for days at a time, but in which, even yet, we should never think of leaving a plate for a much longer time than a day or two, as we know they would become fogged. Dr. Russell, a summary of whose investigations in this direction we published in these columns, gave a list of the substances the emanations from which produced this untoward effect, and the most probable acting cause on the list would seem to be turpentine, a liquid playing an important part in the manufacture of many of the black varnishes of the day. Another substance has been added to the list by Herr E. van Aubel, who finds that resin is capable of acting in the manner described by Dr. Russell. This is an important fact to bear in mind, as it also, from motives of economy, is often used to give body to varnishes, to the partial displacement of shellac. There is, however, still another direction in which its unexpected presence may be looked for. It has been noticed that large quantities of resin have been exported to India, and the use for which it is suggested is the adulteration of shellac. It would be doubly hard to find this most valuable substance rendered not merely less efficient by reason of the sophistication, but also likely to become a fog-producer by reason of the presence of this newly-discovered fog producer.

Eye Troubles Among Photographers. A strong note of warning is sounded on this subject by the *British Journal of Photography*, which cannot but be interesting to every working photographer. It is generally conceded that the red light of the dark-room is especially trying to the eyes and that frequent changes of light from that of the dark-room to the direct and powerful light of the skylight-room often causes painful and even dangerous troubles, in some cases even incapacitates the operator from continuing his work. The editor of the *British Journal* says:

"We commend to our readers a method adopted by Mr. Ives in the dark-room he occupied when stationed in London some years ago. That investigator, most fertile in practical expedients of almost any photographer we have met, had a strong red light immediately in front of him, but he was wise enough to prevent its direct rays entering his eyes, and this he managed in a way as simple as it was efficient. He will, we are sure, forgive us for betraying the secrets of his dark-room. Between the eyes and the light he had a slight board fixed by hinges to the wall, and capable of being lowered, or raised, almost to a perpendicular position if wished, so as to enable him to uncover the light when it was desired to look through his negative by its direct aid, and hide it again when not directly needed. We may add a further detail—though unconnected with the subject we are dealing with—the under side of this screen was painted a very bright color, so as to throw down upon the plate lying in its developer a soft and even illumination."

By F. A. Forber, Aledo, Ill.

By the Roy Studio, Peterboro, Ont.

By S. Newman, New York City

By S. Newman, New York City

By F. A. Forber, Aledo, Ill.

By S. Newman, New York City

By S. Newman, New York City

By J. M. Bandtel, Milwaukee, Wis.

THE PORTRAIT AND THE STUDIO

The work of Martin Jacolette

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The sixth of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of Martin Jacolette, of London, Eng., are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

MARTIN JACOLETTE is one of the non-advertising photographers, a man who just goes ahead and makes a great success without making any fuss about it. In fact, if we have any complaint against Mr. Jacolette it is that he does not enter more fully into the public doings of the profession and enable many to benefit by the results of his wide observation. He is not a recluse, but he is a man who needs to be sought, rather than a man to push himself into prominence. He is a very welcome member of the Photographic Convention, and holds or has held office in the Professional Photographers' Association, the Royal Photographic Society, etc., and possibly the reason one does not see more of him is his somewhat uncertain health.

Mr. Jacolette's business began in Dover, where he had his first experience with Lambert Weston, one of the grand old men of the profession, and where he built up an unusually fine connection, which still remains, although he has also a great business in South Kensington. Technical perfection has been an especial aim, and Mr. Jacolette has given far more time and attention than is spared by most professionals to experimenting with new processes and appliances which seemed promising. This was notably the case with platinotype, a process which he was the first professional photographer to render really popular among his customers, and to the success of which he largely contributed by the suggestion on "plate-sunk" mounts. Like Passington, in the north of England, Mr. Jacolette produced prints which were rich, vigorous, full of gradation, with velvety shadows and hearty transparent high-lights; in other words, he took the trouble to do the best of which the new process was capable and to make negatives specially suited to it, instead of being content with the flat, gray, lifeless prints which passed for "new permanent platinotypes" in too many showcases of those early days.

In practical optics, too, Mr. Jacolette takes keen interest. He not only tries the various lenses produced by our photographic opticians, but also thinks out his own requirements, and orders a specially made or modified instrument if he thinks it likely to be useful. The Dallmeyer-Bergheim lens found in him one of its first professional supporters. He has two very large ones, modified to his own suggestions, and used one of them for the portrait reproduced herewith. He thoroughly appreciates its softly diffusive pictures, but has never introduced it into everyday use because he does not wish to vulgarize the effect or to make it a fashion among his connection. He realizes very fully that the worst sort of convention is when a method especially suitable to a certain class or subject is applied indiscriminately to all, and a wish to use the most suitable method for each individual sitter is a leading point in Mr. Jacolette's work.

The studio in Kensington is a very large room, probably the longest studio in London. It has a high glass slide and a high glass roof along almost the whole of the north side. Like most of the studios of successful men, it has no very special feature, and Mr. Jacolette frankly admits that it is far from his ideal. Though he built it himself, he was largely controlled by existing and adjoining structures, and if

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he were building now, since the advances that have been made in plates and lenses, he would build it lower and with much less glass; for the old great flood of light is no longer needed, and most of the work is done with concentrated lighting.

In the operating two assistants are employed to look after the camera and the plate-holders respectively, so that the photographer can give his whole care to inducing the sitter to do his or her own posing, and this he has reduced to a fine art. Even when dealing with a head or a bust portrait the seat is important, for it affects the whole carriage. A sitter who at once lounges when placed in a convenient-height chair, and who becomes awkwardly rigid if *told* to hold himself together, will carry his head and shoulders well and naturally if seated on a stool that is just a little too high. And if a shoulder drops, or if the pose becomes stiff and strained, it may be brought right again by placing a low footstool under one of his feet, by moving the position of the feet, or by simply asking the sitter to stand up and sit down again. If the sitter is told that these things are done to affect his pose, he shows effort and self-consciousness, but if he stands up to allow of moving (even an imaginary moving) of the seat, he acts naturally and without constraint. The same sort of thing applies to posing of the head and hands, and Mr. Jacolette is a master of the art—which seems to be the greatest thing in fine photographic portraiture—of letting the sitter do his own posing, but making him, unconsciously, do it as the photographer wishes. This is an art which cannot be communicated. I might detail a dozen little tricks practised by Mr. Jacolette, quite unobservable by any sitter who was not specially looking out for them, and successful in securing pose of chin, turn of head, direction and expression of eyes, and so forth, without giving one hint that another man could successfully use. The great thing is to realize that such an art exists and that it is valuable then make your own little methods —and to be really successful, make them new for every sitter and every sitting.

A NOVEL VARIATION OF THE THREE-COLOR PROCESS.

A NEW method of three-color photography has just been brought forward by MM. A. and L. Lumière, the details of which they have submitted to the French Académie des Sciences. Some idea of the plan which they suggest may be gathered from the following outlines of its principles:

A perfectly smooth sheet of glass receives a coating made up of microscopically minute particles which are transparent and are colored respectively reddish-yellow, green, and violet, the number of such colored particles and the intensity of their coloring being suitably adjusted. Such a plate when examined by transmitted light should present no colored appearance at all, but merely appear coated with a grayish film, absorbing only a fraction of the light falling on it. In other words, the sum of the reddish-yellow, green, and violet rays passing through the different colored particles, and their strength, should be such that they reconstitute white light.

On the top of this colored layer is applied a film of a panchromatic sensitive emulsion.

If, now, such a plate is exposed in the camera to a colored image, taking the precaution of making the exposure from the glass slide, the light will be exposed to the absorption of the colored particles before it reaches the sensitive film. There will thus be exercised a selective effect, which will give, after development and fixing, a colored image of the original, but in the complementary colors.

To make this clearer, let us take as a case in point some part of the image which is of a red color. The red rays will be absorbed by the green particles, and will not reach the sensitive emulsion beyond them. But they will pass through the orange and violet particles, and affect the film beneath. After development, therefore, we shall have an opaque image beneath the violet and orange particles in this part of the picture, which will cut out those colors when the plate is examined by transmitted light; but beneath the green

particles there will be no image, and green light will be transmitted. Thus the red of the subject will appear green, the complementary of this negative; and in like manner the other colors of the subject will each be rendered by their complementaries, yellow being represented by violet, etc.

If such a plate were printed by contact upon another plate of exactly the same kind, we should once more get a set of complementary colors by the same method; and so we should obtain a positive in the same colors as were presented by the original subject, and that by a purely photographic process, which would allow of a number of colored positives being printed from a true color negative.

The experimenters point out another way in which such a process could be worked. Instead of printing the negative on a plate similar to that on which it was itself taken, the negative itself, after development but before fixation, may be converted into a positive by one of the well-known methods, which would then give a single direct colored picture in one operation.

The principal difficulty of this highly ingenious method would seem to lie in the production of a suitable color film beneath the emulsion. Messrs. Lumière state that they have surmounted this trouble by proceeding in the following manner: Potato starch, composed of a fine powder the particles of which are from fifteen to twenty thousandths of a millimetre in diameter, is taken and divided into three lots. Each lot is then suitably colored by means of dyes, and the powders when quite dry are thoroughly mixed together in the proper proportions. The mixed powder is spread by means of a badger on glass, preferably coated with a resinous varnish. By careful manipulation it is possible to secure an even layer of the powder practically without superposition of the particles; and any interstices between them which would otherwise allow of the passage of white light are filled up by the application of very fine black powder—finely ground wood charcoal, for example.

It is thus possible to obtain, say they, a screen, every square millimetre of which is occupied by two or three thousand tiny three-color elements. Such a screen is coated with a fine varnish having an index of refraction near to that of the starch granules, and on the top of that is applied the panchromatic emulsion.

If plates can be so prepared to answer to the theoretical requirements, Messrs. Lumière will have devised what must be regarded as one of the most promising of three-color methods.

PHOTOGRAPHY AND SOME OTHER LINES OF BUSINESS.

BY W. I. SCANDLIN.

A STUDY of the conditions governing the photographic world and those governing the world of business around reveals some very interesting facts and offers instructive material for comparison between the two. Photography has been called, and justly, a business dealing with the luxuries of life. It is a business that depends for its support upon the voluntary rather than the compulsory payment of its charges. The public can exist without photographs, unlike bread, flour, meat, and the staples of life. Years may come and go, as they often do, between the times that one or more members of a family contract any indebtedness at the photographer's. In this particular sense photography is unlike a very large number of other lines of business, but as we look about and study the conditions we find that there are many other lines catering also to the luxuries of life and supplying products which the public might be deprived of for months or years without any great discomfort or disadvantage.

Let us for a moment look at some of these other lines of business not absolutely necessary to the health or life of a community, and see what comparison can be drawn between them and our own chosen line. Taking as a basis of our investigation a late report made up by one of the

many large addressing and commercial agencies of New York, we shall find that there are in the neighborhood of 15,000 professional photographers in the United States at the present time. This list includes practically every studio and gallery, large and small, prosperous and bankrupt. Those of us who are at all familiar with the conditions governing the photographic business in this country know that the proportion of prosperous, money-making photographic studios is extremely small when compared with the total of what we may call 15,000. There are, however, within the same territory almost 11,000 concerns dealing in jewelry, and more than 22,000 business houses dealing in music and musical instruments, and more than 25,000 selling confectionery, about 12,000 engaged in selling bicycles, and 42,548 different concerns interested in making and selling cigars, while scattered about among them all are 16,273 theatres, which cater to hundreds and thousands of people every night throughout the entertainment season.

Are any of these several lines of business more necessary and important to the health, happiness, comfort or existence of the great American people than those other luxuries which emanate from the progressive, up-to-date photographic studio? —those so called luxuries, that, long after the plate is worn from the jewelry, or the dulcet tones of the orchestra have vanished into forgetfulness, still present to the dear ones left behind the living likenesses of loved ones gone long years before? Is the smoke of a rich Havana or the flavor of a delicate confection to be compared in importance with the lasting value of a photographic portrait, which in many, many cases represents the only tangible link between the past and the present, and which provides almost the only means by which posterity may become acquainted with the lineaments of those who went before them? If not, is there any reason why, under the same conditions, jewellers, confectioners, cigar dealers and theatre managers should acquire wealth and competency while the photographer, starting with little or nothing, barely holds his own through life. Almost every one of these several lines of business and many others involve the carrying of more or less expensive stock, the payment of high rents, and, in many of them, the employment of a large and expensive force of clerks and assistants. These businesses may, one and all, be justly termed businesses that cater to the taste of luxury, businesses which, like photography, might largely be done without, and yet they are, in general, prosperous, profitable, and, in in a large number of cases, the source of immense wealth. The photographer, on the other hand, carries no expensive stock, orders his materials from week to week or month to month to meet the demands upon his business during that period. These demands he may always gauge with accuracy, and his only outlay is the equipment of his studio; his rent, which beside the other named lines of business is universally lower, and the payment of his staff of employés, which also in comparison is inconsiderable. Agreeing that these several assumptions and statements are correct, there is, it seems to the writer, one thing and only one that accounts for the tremendous difference in the financial standing and prosperity between the photographer and his several business neighbors. That one thing is the business education and experience with which the equipment of each must begin, but which, in the case of the photographer, often is not acquired until so late in life as to seriously handicap his onward march to prosperity. There is, the writer believes, growing up in our community a class of photographers, men young in the ranks of photography, but keenly alive to the business interests with which the whole world about them is teeming, who are to-day building for themselves better photographic businesses than many that have been established in this country since the early years of photography. These men are creating in the communities in which they live a demand for good photography, and meeting it as fast as it can be created.

The tobacco habit has long been recognized in our land, so also has the theatre habit; why should we not create a photograph habit? It can be done in any community of any considerable size, and once it is established it becomes as much a habit as does the theatre or the smoker's habit.

Think for a moment what would be the business of a photographic studio in any part of the country if it might claim one-twentieth part of the patronage accorded to the theatres in the same section. There are more theatres in the United States today than there are professional photographers. One offers to its patrons a few hours' transitory enjoyment or recreation each evening. Many people patronize the theatre two or three times a week, receiving for their money absolutely nothing of a tangible nature, while if the same amount of money were spent with the photographer once each month, or even twice a year, they would take with them tangible results of present, everyday interest, which in future years will become of priceless value. The photograph habit has never been cultivated as it should be in this country or elsewhere. The field is open, and the progressive photographer who sees it and acts upon it will reap his reward. He will not see it, however, until the profession as a whole can get outside the dark-room far enough to throw off the fog which has enveloped the business end of photography for the past two or three decades.

It may be asked, "How is this business end of the studio life to be developed?" There are many ways. If the technical work of the studio consumes the entire time and attention of the proprietor, let him look about for some bright young man or woman in his own employ to whom he may teach, or rather whom he may allow to teach him a way out of the difficulty. Encourage him or her to read up along advertising lines and to become posted upon the live business questions of the day and the methods by which their neighbors are rapidly and steadily progressing toward prosperity. Make it an object for him or her to acquire some insight into the ways and means by which business success in other lines of work is achieved. The problem is a personal one in each and every studio. It is one with which the proprietor himself should grapple, where he can, but the claims of each and every studio upon its buying public should be made evident and brought prominently to the attention of every person at least several times a year.

When, after careful study of the conditions under which the studio business is conducted, the best method has been found for bringing these claims to the attention of the public the method should at once be put into operation. Whether under the hands and leadership of the studio proprietor, one of his own personal staff, or an outsider familiar with photographic requirements and advertising methods, it is for him to say. Once adopted, however, it should be followed out with persistent, dogged perseverance, and the results will prove the wisdom of the plan.

One of the best directions in which to establish the photograph habit is with the young mother, who should be so thoroughly imbued with the thought that her children must be photographed with every six months of their life that the matter in her mind never takes the form of a question but is an established part of the routine life of the little one. The photograph habit thus acquired in the early life of a growing family is itself the beginning of a higher standard and an increasing demand for photography throughout the country. We cannot, of course, all wait to institute the beginning of the photographic habit in the comparatively few families forming about us, but this field offers a magnificent opportunity for its beginning in one direction at least.

Southern Tri-State Convention. The first annual convention of the Southern Tri-State Association, including Georgia, Alabama, and Mississippi was held at Atlanta, Ga., July 5 to 7. Birmingham, Ala., was chosen as the place of meeting for 1905, and the following officers were elected for the ensuing year:

W. M. Stephenson, Atlanta, President; Chas. R. Turner, of Tuscaloosa, Alabama, Secretary; F. S. McKnight, of Aberdeen, Miss., Treasurer, with the following Vice-Presidents; M. H. Wilson, of Savannah, Ga.; E. Yungerman, of Columbus, Ga.; E. B. Peddinghaus, Birmingham, Ala.; T. C. Coleman, of Montgomery, Ala.; J. E. France, of Oxford, Miss., and J. B. Huffman, of Tupelo, Miss, The President, Secretary and Treasurer were unanimously re-elected.

ITEMS OF INTEREST.

Federation of American Photographic Societies. A distinctly good movement was made in the interests of photography at a recent meeting called for the purpose at the rooms of the Metropolitan Camera Club, No. 102–104 West 101st St., New York City. On this occasion there were present representative members from camera clubs and photographic societies of the following cities: Boston, Washington, Toronto, Philadelphia, Chicago, New York and Brooklyn, also the Salon Club of America.

Under the leadership of Mr. Curtis Bell, President of the Metropolitan Camera Club, these organizations formed themselves into a federation of clubs (limited to twelve in number) for the purpose of annual exhibits, under the salon system, of the best work produced by the clubs during the year, and, what is better still, instituted a movement for the annual filing of record prints illustrating "interesting landmarks, old buildings, quaint local customs, etc." It is proposed that these record prints be annually filed in the custody of some reliable public institution, the Smithsonian Institution at Washington having been named as a possible custodian. This latter is a field of work in which photography should play an important part in the coming year, in view of the many historic landmarks rapidly giving way to the spirit of progress which sees only the commercial and overlooks the sentimental. There is room and need for some such system of preservation as that proposed.

The Photographers' Association of California, one of the youngest, but probably one of the strongest State associations in the field, just entering upon its second year of existence, publishes a *Monthly Review*. The object of the *Review* is to keep the non-resident members of the association in touch with its work, "to publish briefly such photographic news as will be likely to prove of interest to its members."

The newly-elected officers for the second year are: President, O. H. Boyé; Vice President, L. F. Terkelson; Secretary, D. F. Mullender; Treasurer, H. G. Vaughan; Director, Louis Thors.

The association is doing aggressive work on the western coast. It has already produced excellent results, and a bright future is predicted for it. All who have come in touch with its influence are earnest in the opinion that it is destined to be of great value in the development of high grade professional photography and in raising the standard of the profession in this country.

The Photographers' Association of Pennsylvania, Delaware, and Maryland held its eighth annual convention at Harrisburg, Pa., during the last week in May. Washington, D. C., was selected as the place of meeting for 1905, and the following officers were elected:

President, J. E. Giffin, Wheeling, W. Va.; First Vice President, A. T. Proctor, Huntington, W. Va.; Second Vice President, H. H. Detrich, Altoona, Pa.; Secretary, C. R. Gates, Lebanon, Pa.; Treasurer, W. I. Goldman, Reading, Pa.

The photographic salon, twelfth year, will be held at the Dudley Galleries, Egyptian Hall, Piccadilly, from September 16th to November 5th. This society, better known to the American public as the Linked Ring, has arranged special conditions governing American photographic exhibits, under which examination is made by a New York committee of the society, and accepted photographs are forwarded direct, which will be hung upon acceptance by the sub-committee.

The decoration of the Paris Academy of Public Instruction and Fine Arts is not common in this country. Two members of the photographic profession have, however, lately been decorated in St. Louis with diplomas and ribbons of this academy. The first to receive the honor was Julius C. Strauss, the high artistic quality of whose work has been seen and commented upon by the French Government. The decorations were bestowed upon Mr. Strauss in his studio by Paul Lascombes, who repre-

sented the French Ministry personally. By this action of the French Government, Mr. Strauss is now an officer of the academy, and is open to the congratulations of his fellow-workers in this country.

Mr. William H. Rau, of Philadelphia, official photograper to the World's Fair, was similarly decorated a few days after, and is likewise to be congratulated.

Photographic Association of North America. In Chicago, on June 27th, was held a meeting of professional photographers in sympathy with a movement to advance the financial interests of the profession.

To attain this end it was agreed to organize The Photographers' Association of North America, whose work it would be to grant diplomas of efficiency to photographers in business, and certificates of ability to employés. A plan was also agreed upon for the establishment of an apprenticeship system, so as to insure a sufficient supply of really good workmen and to discourage individuals from entering photography who did not possess the natural aptitude for the calling.

The following were unanimously elected to office: President, George G. Holloway, Terre Haute, Ind.; Vice-president, Frank Medlar, Spencer, Iowa; Secretary F. Dundas Todd, Chicago; Treasurer, William L. Koehne, Chicago. Board of Directors: the above officers with R. H. Mann, Virginia, Illinois; C. H. Van de Venter, Decatur, Illinois; H. M. Henshel, Chicago. Board of Examiners: F. Dundas Todd, Charles E. Smith, and Rad. Coover. Full particulars will be gladly sent by the secretary, F. DUNDAS TODD,

908 Security Building, Chicago.

An exhibition of three-color prints of unusual merit has lately been held in Paris, where a large number of the prominent process workers of the Continent have shown some remarkable specimens, according to an English writer. This exhibition is said to be the first that has ever been held devoted entirely to reproductions in three colors, and the collection included not only color work from the printing press, but also in carbon and gum bichromate. A number of very large prints, some twenty-eight inches in length and a half-tone print in one color, exhibited by Angerer and Göschel, 24 x 32 inches, together with the plate from which it was made, attracted a great deal of attention.

Pyro and Glycin. A writer in *Photo News* says that "Pyro and glycin in themselves are excellent developers, but when combined I think there are none to beat them. The following formulæ were given me some years ago, and I am delighted with the results: No. 1.—A. Water, 7 ounces; sodium carbonate, 300 grains; glycin, 60 grains. B. Water, 7 ounces; sodium sulphite, 600 grains; pyro, 100 grains; sulphuric acid 2 to 3 drops. For use, mix equal parts A, B, and water. This gives soft results, specially suitable for portrait work. No. 2.—A. Water, 7 ounces; potassium carbonate, 124 grains; glycin, 31 grains. B. Pyro solution as in No. 1. For use mix as directed for No. 1. This gives negatives of greater density and great clearness, which are especially suitable for platinum printing. No. 3.—A. Same as in No. 2, but with 60 grains of potassium carbonate in addition. B. Same as in No. 1; mix as in No. 1. This is very suitable for instantaneous work. Increase of alkali produces more details in the shadows and lessens the intensity of the high lights, thus giving soft negatives. This should be used, then, for instantaneous work or underexposure. Increase of glycin and pyro produces denser high lights and more contrast, and this will be useful for overexposure and flat subjects. Dilution of the developer with water also gives softness. Old developer acts as a good restrainer, producing clearness, and is useful also in case of over-exposure.

The National Association of Photo-engravers met in convention at St. Louis during the past month, and, according to reports, this convention was one of the most satisfactory in the history of the Association.

The following officers were elected for the coming year: President, J. L. Shilling, Chicago; Vice-President, H. A. Tichell, Philadelphia; Treasurer, C. H. Brandon, Nashville; Secretary, Geo. H. Benedict, Chicago.

THE NATIONAL CONVENTION.

OFFICIAL communication from the President and Secretary:

Are you ready for the World's Fair Convention?

The time is drawing near for the Convention of the Photographers' Association of America, and if you have not made ready you should do so at once, for this convention will be a good one, a pleasant one, and will be a loss to you if you miss it.

Some of the points of interest are:

A select exhibit of pictures from all quarters of the country.

A review of the pictures in the Fine Arts Gallery of the World's Fair by Professor Griffith.

Demonstrations of the new Cooper Hewitt mercury light and pictures made by same at the convention hall.

Demonstratious in flash-light photography.

Exhibitions and demonstrations in photographic printing machines.

Practical demonstrations in home portraiture.

Photography from 1846 to the present time by the oldest photographer in the United States, who is eighty-two years old, yet young as the rest of us. You will enjoy this.

Exhibition of color photography, something new.

Manufacturers' and dealers' day in which to examine all that is new in photographic apparatus.

Presentation of life-memberships to the past presidents and a ten-minutes' practical talk from each.

A programme full of good practical things.

Half-day sessions only, which will be held on schedule time.

Afternoon visits to the World's Fair, where will be found instruction and amusements of a lifetime.

The most social convention of all, where we eat, sleep, and enjoy the convention all under one roof.

Hotel rates of $1.00 and $2.00, two in a room, European plan, guaranteed by contract, and the exclusive use of the hotel for the convention people for the week.

Very low rates on all railroads, the World's Fair rates.

Great effort is being made by the Executive Committee to make this convention a successful one in every particular, and every photographer is urged to lend all assistance possible by getting up his best display.

The convention will be held in the buildings of the Forest Park University, which have been converted into a hotel for the Fair period, and is near the southeast entrance to the Fair Grounds, and on the car lines that run west from the Union Station. (Take the Laclede or Market Street cars for the hotel).

It is important that you secure quarters before coming to St. Louis, as you will save time and trouble. To secure accommodations at the Forest Park University Hotel you must have your dues paid and a receipt from the treasurer, as the hotel has been reserved for the members and families only.

To avoid delays and mistakes in shipping, send to the Secretary, George C. Holloway, Terre Haute, Indiana, for shipping labels.

Pack your pictures securely and have return address on back of cover.

Pictures for the art exhibit should be shipped to Chas. W. Hearn, Forest Park University Hotel, St. Louis, Mo., in care of Fowler's Transfer.

All goods for the manufacturers' and dealers' display should be shipped in care of the Secretary, George C. Holloway, directed as above, and in all cases transportation charges must be paid.

Goods sent in care of Fowler's Transfer will be taken direct to the hall. Otherwise they may be held in the city offices, several miles from the convention hall.

Pay your dues to the Treasurer, Frank R. Barrows, 1873 Dorchester Avenue, Boston, Mass., and get your receipt and order for hotel accommodations beforehand.

Remember the date, October 3d to 8th, inclusive.

C. R. REEVES, *President*,
Anderson, Indiana.

GEORGE C. HOLLOWAY, *Secretary*,
Terre Haute, Indiana.

CARBON PRINTING.

BY JOHN H. GEAR, F.R.P.S.

THE following condensed report of a demonstration before a recent meeting of the Royal Photographic Society of Great Britain is reprinted in its entirety from the journal of the society. Mr. Gear's treatment of the matter is so elementary in its character as to be thoroughly understandable, and so clear in its treatment as to cover the field of carbon printing very thoroughly.

The speaker said in effect:

"The carbon process possesses the advantages of great permanence of the prints, wide range of colors obtainable and great latitude. Dense and thin negatives produce most satisfactory prints under certain conditions, and as the tissue can be sensitized, exposed, and developed within a few hours, the process universally commends itself, and no other process is capable of producing more exquisite pictorial results. The varieties of surface are also very great, as exceedingly smooth, medium or rough surface paper can be used according to the nature of the subject. Opal, glass, or ivory can also be used as a final support. The process depends upon the action of light upon pigmented gelatine associated with a chromic salt. The tissue can be sensitized during manufacture or subsequently. A disadvantage of ready sensitized tissue is its inferior keeping qualities, although great improvement in this direction has been made. The ready sensitized tissue will keep for several months, however, if properly stored in boxes. The keeping qualities of tissues sensitized after coating are dependent upon the strength and condition of the sensitizing bath. The first requirement is a good pure paper which will retain its toughness when wet. It may be coated with a solution made as follows:

Nelson's Opaque Gelatine .	1 lb.
Coignet's Gold Label Gelatine .	4 ounces.
White Loaf Sugar . . .	6 ounces.
Potassium Bichromate . .	1 ounce.
Water	80 ounces.
Coloring matter (to suit requirements).	

"The potassium bichromate should be converted into double chromate of potassium and ammonium by the addition of ammonia. The warm solution or jelly is placed in a suitable dish, and the band of paper to be coated is drawn over the surface. Another method is to draw two bands of paper together through the solution, one side of each being coated in one operation. The paper is then dried, generally upon rollers or laths.

"Probably to the majority of those present the most interesting method of producing carbon prints is that known as the single transfer process, which offers many advantages over the double transfer process. By single transfer prints can be produced upon almost any surface, whereas the double transfer process limits one in that direction. In the single transfer process it is necessary, first, to have a reversed negative the graduations of which should be carefully considered. Negatives known as 'plucky' require a tissue sensitized in a bath stronger than that required by a thin, delicate negative. The negative must be 'safe-edged,' and a good way of 'safe-edging' is to paint about ⅛ inch or ¼ inch round the margins of the negative on the glass side. The paint need not be opaque, and if it be slightly transparent it will answer very well. Black or brown paper pasted round the margins of the negative also answers the purpose. If potassium bichromate containing a large quantity of free acid be used in preparing the sensitizing bath, difficulties will be experienced. To secure a satisfactory bath a good sample of potassium bichromate should be taken, and liquid ammonia added, drop by drop, until the solution changes to a light orange color, due to the formation of a double chromate of potassium and ammonium. The neutral bath will work well for a considerable time, but if used for a few prints and put aside for some months it will deteriorate more or less. A standard sensitizing bath is a 4 per cent. solution of bichromate of potash and ammonium, in equal parts, or bichromate of potash converted into a double chromate of potassium and ammonium. The tissue should be cut somewhat larger than required in the finished print, placed

in the bath, face upward, any air bells that may form being removed with a brush passed over the surface. The tissue is then turned face downward in the bath, and the back also brushed. Three minutes' immersion in the sensitizing bath is sufficient, the temperature being about 50° to 60° F. The tissue must not be allowed to float or curl above the solution, nor adhere to the bottom of the dish. It is then placed upon a clean zinc-covered board, and squeegeed evenly and gently with a sufficiently wide flat squeegee, in order to remove excess of solution from the paper. Vigorous squeegeeing is not necessary and will lessen the rapidity of the tissue. The tissue is then laid face upward upon a blotting board and allowed to dry for five or six hours in a temperature not higher than 65° F. or in a current of warm dry air. A proper drying cupboard is desirable, but the drying can be effected in an ordinary room, care being taken to exclude fumes of gas or the products of combustion. In its wet state the tissue is insensitive, but as it dries it becomes sensitive, and must therefore be protected from the faintest rays of white light. Incandescent light will affect the tissues if allowed to reach it for any length of time at a short distance; but ordinary gas light has practically no effect. Another method of sensitizing which is strongly recommended when a properly ventilated drying cupboard is not at one's disposal is the following: A piece of plate glass is thoroughly cleaned with hydrochloric acid, well washed with water, dried, polished with powdered talc, and lightly dusted. Instead of squeegeeing away the excess of sensitizing solution on the zinc-covered board, the tissue is placed face downward upon the polished surface of the glass, and lightly squeegeed into perfect contact. Any moisture remaining upon the back of the tissue should be removed with a cloth, otherwise unequal sensitizing will result. A good surface resembling patent leather in appearance which gives good contact with the negative and better results when fine detail is required is obtained by this method, which is very useful for miniature work upon ivory. The tissue takes longer to dry upon glass than in the ordinary way, but if placed in a current of air at a temperature of about 65° F., it will be ready in eight or nine hours. If difficulty be found in keeping the tissue from white light during drying in this way, the glass on the opposite side to the tissue may be painted with an opaque substance, or covered with black paper, when the tissue may be dried in daylight.

"The printed image is practically invisible, and it is necessary to use an actinometer to determine the exposure. The tissue is rendered insoluble in water in varying degrees, according to the gradations of the negative, by the action of the light. The more soluble portions are washed away by the application of warm water. For the support, a good paper, such as Whatman's, is prepared with a substratum of gelatine. The surface of the paper may be smooth and shiny when the print is required to possess the brilliant richness or the sheen characteristic of the carbon print; or matt surface can be obtained, especially with the new matt tissues. The conditions of drying also affect the surface considerably. For single transfer the paper is coated with a mixture prepared as follows:

Nelson's Opaque Gelatine	1 ounce.
Water	20 ounces.

"The gelatine soaked in the water for several hours, until quite soft, heated on a water bath, and vigorously mixed with—

Chrome Alum	15 grains.
Water (warm)	1 ounce

"This mixture is then laid upon the surface of the paper with a broad camel-hair brush. Rough paper should have two coats of the solution, the second after the first is dry. The brushing should be first in one direction and then across, to ensure an equal coating. Paper thus coated keeps almost indefinitely if preserved perfectly dry; before being used for the development of a print it simply requires soaking in cold or tepid water for about one hour. Rough papers require longer soaking, but as an alternative the temperature of the water may be raised to 150° or 200° F., when a short soaking will suffice. Care should be taken to remove any air-bells that may form upon the tissue when placed in the water, and also upon the single transfer paper; and when the tissue has been arranged upon the transfer paper and

squeegeed in contact with it perfectly, it is placed, under slight pressure, between the blotting boards. It was pointed out that tissue dried upon the glass would not curl much in the water during the soaking previous to mounting in contact with the transfer paper; and that it should never be allowed to curl in the opposite direction. Ready sensitized tissue will curl more than tissue dried in the ordinary way; and when the support is rough or thick it requires more vigorous application of the squeegee than when smooth or thin papers are used. Care should be taken not to allow the tissue to remain in the water too long, as frilling of the edge or difficulties in mounting may follow. The print should remain under pressure between the blotting boards for at least twenty minutes; or, if very rough paper be used, half an hour or forty minutes is not too long.

"The sensitizing bath recommended in the case of thin negatives is of 2 per cent. strength; negatives of medium density require a 4 per cent. bath; while very strong and dense negatives require a 6 per cent. bath. It is possible to work with baths as weak as 1 per cent. and as strong as 8 or 10 per cent., but they are not recommended on account of their tendency to work indifferently. It has been recommended that tissues required to be of different sensitiveness should all be sensitized in the same bath, and allowed to remain according to the degree of sensitiveness required. This method, however, is less satisfactory than that of different baths of various strengths. When the bath shows signs of fogging it should be rejected; and if it becomes acid it should be neutralized with ammonia. A properly made bath should work well for a month or two.

"The developing is a simple matter, provided the previous operations have been properly carried out. The water should be heated to about 100° F., and it should be unnecessary to greatly increase the temperature afterward. If, however, the exposure has been very long, it may be necessary to raise the temperature to 110°, 120°, 130°, or even 140° F., but an overprinted tissue is best developed at about 120°, plenty of time being given, instead of forcing by a higher temperature, with which the risks of blistering or frilling are increased. Over-exposure may be corrected by the addition of a little ammonia to the water, but care must be taken, or blistering and frilling will ensue. A few minims of a 2½ per cent. solution of hydrate in a little water applied with cotton-wool will be found to work well for local development, or, added to the developing water, to cause a more general reduction. Too much sodium hydrate, however, causes blistering. If the gelatine appear to be dissolving too quickly, with a loss of detail in the high lights, the temperature of the water should be reduced to about 90° or 85° F., and development carried on more slowly. By reducing the temperature of the water a much under-exposed print that would be spoilt by water of a higher temperature can often be saved. Development is better commenced at a temperature of 90° or 95° than 100° F., because, when commencing a high temperature, there is danger of washing away the delicate parts of the print. A word of warning is necessary against using a wet blotting board for placing the prints between after mounting and before development, as this is frequently the cause of dark markings upon the print. The greater the depth of the printing the more soaking in the water at 90° to 100° is required before stripping the tissue. Stripping too soon is apt to cause blistering or frilling, but if one end happen to get broken or frilling commence, it is a good plan to leave that end and start stripping from another. While developing, it is advisable to have another bath of cold water at hand in which to plunge the print at the right moment, to stop further development.

"The various colored tissues necessitate somewhat different printing—for instance, a red chalk tissue requires much more printing than black or a dark brown.

"The chief causes of failure are found in the insolubility of the tissue. This may be due to free acid in the bichromate of potash; too long drying of the tissue; the action of gas fumes or the products of combustion; the action of white light when the tissue is dry, or almost dry; the tissue being dried in a damp atmosphere; too long keeping of the tissue after sensitizing, or, of course, overexposure. Unlike most other printing papers, a little

white light falling upon the carbon tissue, before, or in the course of printing, is apt seriously to affect it; for in the carbon process we have to guard against the continuing action of the light. A small amount of light upon the surface of the tissue, either before or after exposure, will continue its action in the dark, and in a few hours produce total insolubility upon the surface. This continuing action of light might be utilized in under-exposure, caused, say, by unexpected failing of the light. In such a case the print should be placed in a box or drawer, protected from white light, and allowed to finish in the dark; eight or ten hours if there was the slightest moisture about being enough perhaps to finish it. In addition, however, to the continuing action of light there is a lateral or spreading action; and a print taken from the frame and allowed to continue printing will not, therefore, show such delicate and fine detail as when development is started directly after exposure in the frame. Development should always be full; all soluble gelatine should be washed away, otherwise there may be a want of fine detail or blurring, and the print may show unequal depths. The surface of the print should not be touched with the fingers during development; but a flat print, one lacking brilliancy, may be improved by applying cotton-wool to the high lights, to increase them. Shadows when too deep may also be reduced by rubbing the cotton-wool over them. Slow drying of the print tends to give a more matt surface than rapid drying; and if laid upon blotting paper, and dried for about twenty-four hours, the print will be more 'flat' than if it be dried quickly, while a print dried by heat will show more brilliancy in the shadows. Reticulation, or a series of blisters all over the print, is a peculiar difficulty, which may be caused by some of the defects already mentioned. A common cause of reticulation is the use of water at too high a temperature. If new tissue suffer by the washing away of the high lights, it will be found to improve by keeping for a few days.

"After development the print is transferred to cold water and then to a 5 per cent. solution of alum to harden the gelatine or fix the print. The alum also helps to increase the permanence of the print and to remove any color which may have been imparted to the paper by the chromic salts. The prints should be allowed to remain in the alum bath for ten minutes or a quarter of an hour, but if they still show color from the bichromate salts they may remain longer in the alum. They should then be washed for about ten minutes in running water, and hung up to dry. (the best way is to suspend the prints on a line to dry, not to blot them); after which they can be mounted in the usual way. Difficulties due to frilling may be found if the print be immersed too long in the water before being brought into contact with the support, when the safe edging has been imperfectly performed, or if it be done upon the film side of the negative instead of the glass side. Frilling may also be due to unequal squeegeeing; to the tissue being under pressure for too short a time, or to the water being too hot at the commencement of development.

"Then comes the work which few prints do not require, namely, spotting or touching up. The best way to do this is to make a little solution of gelatine mixed with some of the same colored pigment as that in the print and work it on to the print through an air brush. It is not advisable to use much color in the brush; and, of course, it is necessary to keep the gelatine solution warm while using it. If this part of the work be done carefully no objection can be raised against it; but when a brush is used some artistic skill is, of course, required.

"In the double transfer process a thick paper is first coated with hard gelatine, quite insoluble, to act as the temporary support. This is treated with waxing solution, made as follows:

Yellow Resin	3 drams.
Pure Beeswax	2 drams.
Turpentine	10 ounces.

"A little of this solution is taken upon a flannel and rubbed in a circular motion over the surface of the temporary support. Then the surface is polished, and about an hour allowed for the spirit to evaporate. The waxed temporary support is then placed in the mounting water, and after a few minutes the exposed tissue is

also placed in the mounting water; it is then squeegeed into contact the same as when mounting a single transfer print, and developed as previously shown; after stopping development with the addition of cold water the print is placed into the alum bath, care being taken that the print is soaked long enough for all discoloration from the bichromate solution to be removed from the temporary support before the print is transferred to the final support. The washing then has to be continued until the print is free from alum, and the print dried before transferring to the final support. If the print be not dried at this stage there is a danger of the image being blurred. Afterward the tissue is soaked for a short time in cold water, and transferred to the final support, which is best when smooth; rough paper being not nearly so suitable. The final support should be previously placed in a 2½ per cent. alum bath for at least half an hour, and then placed in tepid water with the print upon the temporary support. The final support should be a little smaller than the temporary support, but a little larger than the print. The print is brought into contact with the final support under the water, and then well squeegeed into contact upon the zinc-board. The prints are then blotted off and hung up to dry.

"Difficulty is sometimes experienced in bringing the dry hard tissue into perfect contact with the negative in the printing frame; but if both be placed in the frame, and if the tissue be allowed to lie upon the negative for ten minutes without pressure from the springs, it will be found that better contact can be secured. The printing should always be carried on in diffused light.

"Ivory and opal work should be done by double transfer, although the latter may be done by single transfer. Care should be taken that the opal is absolutely clean. The print is developed upon a waxed temporary support, and, when dry, transferred to a piece of smooth ivory, treated with a solution of:

Nelson's Opaque Gelatine	½ ounce.
Water	10 ounces.

"The gelatine is first washed and soaked and dissolved by raising the temperature of the water, when it is filtered through a piece of linen or muslin. The following is then added:

Chrome Alum	6 grains.
Water (warm)	½ ounce.

and the mixture is well stirred.

"The ivory should be placed in a warm dish, and the warm solution poured upon it. The print is adjusted upon the ivory; squeegeed from the back of the print upon the temporary support into contact, and hung up to dry, after which the support can be stripped off, leaving the print upon the ivory. It should be noted that, although the high lights on the print when wet may appear quite white, they may show a distinct tone when the print is dry.

"The only objection to the use of chromate of ammonium instead of the potassium bichromate converted into a double chromate of potash and ammonium is its expense, the latter being very easily made in solution and cheaply. It is not advisable to put the tissue under great pressure, as suggested, with a view to hastening the drying between mounting and development. A better plan would be to use only slight pressure for a short time and then facilitate the drying by placing the mounted tissue in a current of warm, dry air."

Stock Background. C. A. Zimmerman calls attention in a recent issue of the *Northwestern Photographic Recorder* to the fact that a white ground is white in a photographic reproduction only when it received direct illumination, was perfectly timed and developed, and was, moreover, *in focus*. This latter point, he says, is important and explains why so often such a ground will come out gray instead of white, being as it must needs be, some distance behind the sitter, and its lights or color rays not coinciding at the focal point. Plain black, he adds, is similarly affected, and is apt to come out a very dark gray when conditions exist such as I have just sketched as governing white. Dead black may be obtained by obscuring the background, interposing a screen between it and the source of light; obviously this will will produce almost clear glass in the negative.

TRANSLATIONS AND ABSTRACTS FROM THE GERMAN.

BY HENRY T. WEED.

CONSIDERABLE interest has been aroused in Germany, as is shown by the reports of the society meetings, over a new pigment paper of Dr. Adolf Hesekeil & Co., of Berlin. This paper, "Multico," is a carbon paper, coated with a number of layers of different colored pigments. It is handled in the same manner as ordinary carbon paper, and is intended for landscapes only. By exposing under an ordinary negative, and developing as usual, a picture in colors is produced. These prints are of course not accurate examples of "color photography," but the colors of the pigment layers are so arranged that by using a suitable landscape negative a colored result approaching the colors of nature is obtained. The price is not excessive, a square meter of the paper costing seven marks.

LUMIÈRE and SEYEWETZ have investigated the oxidation of potassium metabisulphite and sodium bisulphite in continuation of their work on the sulphites. An abstract of their conclusions follows:

1. Crystallized potassium metabisulphite does not alter appreciably in either moist or dry air.

2. Solutions of potassium metabisulphite alter when exposed to the air. This oxidation is, in weak solutions, much less than in solutions of sodium sulphite of corresponding strength. With solutions of 20 per cent. the reverse is true, metasulphite oxidizing more readily than sodium sulphite.

3. It follows from (2) that the rate of oxidation of both weak and strong solutions of metasulphite is about the same, so that there is no advantage in preparing strong solutions of either potassium metabisulphite or sodium bisulphite as far as their keeping qualities are concerned.

4. Sodium bisulphite in the crystal form is not appreciably altered by keeping. In solution it behaves much the same as potassium metabisulphite.

As a practical conclusion from their work they recommend the use of anhydrous sodium sulphite in the developer in preference to any other of the sulphites. It is true that potassium metabisulphite does not oxidize so readily in dilute solutions as does sodium sulphite, but this advantage is offset by the fact that when using it at the moment of mixing the developer it is necessary to add a certain extra amount of alkali to neutralize its acidity, and, since this amount varies with the time the solution has been standing, the composition of the developer is uncertain.—*Photo. Rundschau*, 1904, page 184.

ONE of the best methods for stripping the film from ordinary plates is that given by Obernetter. The negative is first soaked in a solution of formalin of about 6 per cent. Old negatives should remain in this for ten minutes, while recently developed plates need soak for only three to five minutes. The plate is then washed, and when dry or only moist placed upon a levelled slab and covered to a depth of 2 to 3 mm. with the following gelatine solution: 200 grams of hard gelatine is allowed to swell in cold water. The gelatine is then freed from the water so far as possible by squeezing it in cloth and then dissolved in 1000 c.c. of hot water. After solution is complete add 100 c.c. alcohol, 20 c.c. glycerine, and 20 c.c. glacial acetic acid. The mixture is allowed to stand for half an hour in warm water, and then filtered through flannel. The negative, covered with this solution is allowed to dry in a place free from dust. The edges of the dry negative are cut through and the plate immersed in—

Glycerine	50 c.c.
Alcohol	200 c.c.
Water	1200 c.c.

Rock the tray gently, and in five to ten minutes the film will strip.

A collection of all the generally used methods for stripping the film may be found in *Eder's Praxis der Phot. mit Gelatine-Emulsionen*, page 575.

SOME EXPERIMENTS WITH PLATINOTYPE PAPER.

BY WALTER ZIMMERMAN.

NINETY-NINE per cent. of the users of platinotype paper have no knowledge of its use, except the apparently very full printed directions wrapped up with it and contained in the tin box. This ninety-nine per cent. naturally includes many of the most expert professional photographers, my meaning being that very few photographers know that there is a world of fascinating knowledge in the employment of these iron-platinum papers beyond the careful direction, or rather absolutely in violation of them.

These variations are most useful, and give the following results:

1. It will rarely be necessary to waste a piece of platinotype paper on account of it being either overprinted or underprinted.

2. Platinotype paper damaged by age, heat, or dampness need never be thrown away, and it may be used for brilliant and even artistic pictures.

3. "Soft" prints may be made from harsh negatives, and

4. Brilliant prints can be made from flat and apparently worthless negatives.

It may be thought a rather difficult task to prove all of these propositions, but I cannot only do all of these things myself, but can promise that others may do them by carrying out the suggestions which follow:

UNDEREXPOSED PRINTS.

When a print has been taken out of the printing-frame too soon, and, when too late, it is discovered that it would be worthless if developed in the ordinary way, then every bit of the effect of the sunlight has to be coaxed out of it in a very simple manner.

When only slightly underexposed, heat the strong oxalate developer up to or a little beyond blood-heat, so that it feels quite warm to the finger. Lay the print flat in a clean tray, face up, and pour the warmed developer gently over it, giving a circular motion to the hand, in order to cover the print uniformly.

When decidedly under-exposed, the developer has to be brought to its highest chemical efficiency, making sure of saturation by adding oxalate of potash crystals and by heating nearly to the boiling point. If actually boiling, bubbles are apt to form on the print. Undissolved crystals or other sediment should not, under any circumstances, be allowed to touch the sensitized surface, as they cause white spots. While it may not pay to heat the developer to save a very small print, it certainly does pay with the larger sizes of paper. Besides, a very pleasing rich black-brown tint results from this treatment, giving a distinct effect from the usual blue-black of platinotype. Another peculiarity is the "softening" of the print, which will be referred to later.

OVEREXPOSED PRINTS.

A piece of platinotype paper which has remained a little too long in the printing-frame, and which shows the entire image as if it were printing-out paper, will, if developed by the ordinary method, blacken so thoroughly as to be useless. Reduction of platinotype paper after development being impracticable (treatment with aqua regia being a useless experiment) such a print is worthless. The simple remedy is to dilute the oxalate solution to correspond with the over-printing, as follows:

1. If the overprinting is but slight, the saturated oxalate should be diluted with an equal quantity of water.

2. If the overprinting is decided, the ordinary developer should be diluted with fully five times the quantity of water.

3. If there is a strong image, fully printed out, the proportion of water to normal developer should be ten or even twenty to one.

4. If the paper is darkened, so that the image is darkened, thus leaving it hardly discernible, use scalding hot water without any developer.

5. If the high lights have become dark or light and the shadows "reversed" to a light, the effect being that of a negative,

develop in plain water of ordinary temperature.

6. If the print has reversed a second time, and has again become a positive, it is presumably worthless, but it might be worth while to add five or ten drops of muriatic acid to a pint of ordinary water and try the effect.

It should be borne in mind, however, that the further we advance along this line of treatment the greater is the contrast obtained, this contrast being useful with some negatives and detrimental to others.

By the above it will be observed that fair to good photographic prints can be obtained, notwithstanding great degrees of underexposure and overexposure of platinotype paper. The quality of the picture so modified may suit the purpose of the photographer quite as well as a normal print, in some cases better, while in others the print may be useless. The quality of the negative is the determining factor as to the beauty and usefulness of prints obtained by these abnormal methods, and you may know beforehand just what to expect.

For instance, you will know from the foregoing that a harsh, over-contrasty negative will yield a soft, rich print if properly exposed and developed with warm or hot saturated developer.

On the other hand, a "stale, flat, and unprofitable" negative, which, with the most careful printing by orthodox methods, gives equally flat and uninteresting prints, can be made to yield really brilliant pictures by overprinting and then diluting the developer.

HOW TO IMPROVE PRINTS BY MODIFYING THE DEVELOPER.

The first step in learning these "tricks" in development is to save the prints supposed to have been spoiled by careless printing.

The second step is to learn how these "tricks" may be purposely used in order to produce certain desired effects in platinotype printing.

The method of using faulty negatives, as usually recommended, is diametrically the reverse of mine, and is erroneous, as experiments will demonstrate.

TO INCREASE CONTRAST.

Take a negative which was overexposed or underdeveloped and which, while containing some detail, is lacking in contrast. How can such a negative be successfully printed? To illustrate the answer. Among my negatives is one of Mont Saint Michel, France, a negative which was much overexposed, and is, therefore, of almost uniform density. The utmost care with ordinary methods failed to show anything but a "muddy" looking print. I had received a box of paper, dated five years back, given to me by a friend, and I tried the experiment of using this bad negative and bad paper to make a good print. A paradox and an impossibility, the reader may say. The paper was so bad that the developer without exposure would blacken it, and so brittle that it crumbled with rough handling. I printed a piece of this paper with my bad negative until the whole surface was a rusty black, with not a trace of an image to be seen. I then heated some water to boiling, and then laying the wretched-looking print face upward in a dry tray, poured the boiling water over it. The result was a brilliant picture, so fine as to receive praise in a competitive exhibition. Except for this process it would be impossible to produce such a result from such materials. The paper itself had "aged" to a buff color, and the iron deposited on the finished print was of a rich, deep brown. Every line and half-tone was perfect. The thing is so extremely simple that every person can accomplish the same result. Prints so made should be cleared as usual, but the acid bath (1 to 60) should also be scalding hot.

The employment of worthless old paper is not needful, as good paper may be treated in the same way to produce contrast and brilliancy. The experiment which I have given for illustration of the process shows the great latitude which is possible with platinotype paper.

For still greater contrast, the printing should be continued until the print becomes absolutely "negative," the shadow being bronzed to a straw tint, and the high lights a "foxy" black, as already mentioned. Development in plain cold water

will give an unusual "stunt" in the way of photographic printing, and, in some cases, the result is pleasing and artistic. This is most likely when a flat, "muddy" negative is used, but the method is rarely satisfactory in portraits.

TO "SOFTEN" CONTRASTS.

On the other hand, a hard, untractable negative may be harnessed down to do good work by not printing it too deep (the temptation being in that direction, in order to get detail into the high lights); but, instead, using the chemical action of the developer to the fullest extent. Oxalate of potash crystals should be added, and the developer heated to boiling, although it is better that it should not be actually boiling at the moment when poured on the print. Such prints are soft and of a rich brown-black color, and are almost as surprising for their fine quality, under the circumstances, as the brilliant prints from weak negatives obtained by the opposite method.

TO MAKE USE OF OLD PAPER.

Platinotype paper which has passed beyond the date-limit ought never to be thrown away. It should be saved for the "mean," flat negatives, as already hinted at. Paper which has normally passed far beyond its time-limit of usefulness will change to a muddy black color when placed in developer without any exposure to light. The very old paper used in my experiment would have turned black in the oxalate without exposure. The heat of several summers had decomposed the platinotype salts, leaving the less perishable iron salt remaining to be acted upon by the long exposure to the sun's rays. The chemical changes which have taken place in the paper are then offset by the dilution of the developer or the use of hot or cold water, according to the depth of printing, as first described.

SUMMARY.

For "soft" pictures from harsh negatives do not overprint, but use hot developer, full saturation.

For brilliant pictures from flat negatives overprint and weaken developer, or even dispense with developer.

For stale paper, overprint and develop in hot water.

For "low tones," overprint and use weak developer.

CLEARING AND DRYING.

In every method here described the finishing process is the same as with normal development; weak hydrochloric (muriatic) acid baths, until there is no trace of yellow in the water, and prints then to be washed in running water for a few minutes. When development is with hot or cold water without oxalate, the clearing bath (60 to 1, muriatic acid) should be scalding hot, to remove the remaining iron more effectively.

The best way of drying photographic prints of every kind is to hang up by one corner, so that any trace of chemicals may drain off rather than dry into the print.

No photographic paper is capable of such beautiful results nor of so great a variety of results as platinotype paper.

I am not at all sure that I will convince all readers that the methods here described should be constantly used, but I think that all will agree that the results of these experiments are both interesting and curious, with at least occasional effects which are far superior to the results of careful normal exposure.

PRINTING THROUGH THE PAPER.

There is another trick or "stunt" which may be employed with any photographic printing paper, but most effectively with platinotype. It is to turn the paper upside down in the printing-frame, so that the white side is next to the film. The sensitized surface is then printed from the back, which distributes the light in a way that is particularly agreeable to those who like very "soft" effects in photography. The texture of the paper gives a more pleasing effect than the atrocious "bolting-cloth" method which had some vogue a few years ago. This effect of distribution of light may be increased by turning the plate over also, so that the objects will not be reversed as to position, as is the

case when the paper alone is turned. Let the reader try this reversal of both plate and paper with a large marine view negative, and he will have a new picture, and, probably, a fine one, with "atmosphere" and a little mistiness. The rougher grades of paper are the best for this work. Printing and development are, of course, as usual, but the time required for printing is ten to twenty times that by the normal method according to the thickness of the paper used. One more personal reference to illustrate just how this photographic "stunt" may be useful. I had made one of those rare snap-shots, two or three years ago, of a schooner in Boston Bay, with long trailing shadows of its masts and sails in the calm water. An enlarged plate, made for me professionally, was so absolutely perfect that it was simply as "hard as nails;" and while friends gladly accepted copies—and that's some tribute—the juries invariably passed it by on the other side. I tried the "other side" too, by the "turning-over" process just described, and the juries then thought differently.

I will, in conclusion, give the reader one more trick in printing, not confined to platinotype, which, as an experiment, will be found to be most interesting. Take a profile portrait negative, and from it make a contact positive. The negative should be strong and the positive weaker. One of the two, it does not matter which, should be on a film, such as from a "Kodoid plate," or a cutting from a roll film. Place negative and positive together, so that they will "neutralize," as opticians say, and form an almost uniform black surface when held up to the light. Then shift them a hair's breadth, until an outline appears upon them, holding the two, positive and negative, again up to the light. Attach the two by narrow pieces of gummed paper, so that they will not slip, and lay a piece of sensitized paper next to the film. Of course, it will take a good while to print through both negative and positive. The outline should be deeply printed. The result, when developed, will give a "bas relief" or "statuary" effect. This method is particularly suited for full profile portraits.—*Southwest Photo.*

The £1000 Kodak Competition. A detailed report of the results of the £1000 kodax competition has been received in this country, and the results cannot but prove gratifying to those who take an interest in American photography. There were something over 20,000 entries received, of which about 12,000 were from the British Isles, 2500 from France, 2000 from the United States, 1700 from Germany, and 2000 scattering. The British Isles received 229 prizes, the United States 85 prizes, France 28, and Germany 12. It will thus be seen that the British exhibitors received one prize to every 52 entries, the French one to every 89, the German one to every 141, and the American one to every 23 entries. Our American amateurs, in proportion to their entries, carried off over twice as much as their British cousins, three-and-a-half times as much as the French competitors, and did six times as well as the German—at least such was the opinion of the British judges, who were no less personages than Sir William Abney, Mr. Craig Annan, and Mr. Frank Sutcliffe.

We are informed that Kodak Limited will make a display of the best work at the Kodak Galleries, 40 Strand, continuing same for several weeks.

Photographs by Wire. One of the most recent experiments in the field of transmitting pictures by wire is to be credited to a German experimenter by the name of Korn. Selenium is used for the transmission of the current, the amount of light falling through the negative upon each of a series of minute cells determining the strength of the current which is passed. The negative to be photographed is made upon a film and mounted on a glass cylinder which revolves in front of an electric light. A sheet of sensitive paper on a corresponding glass cylinder at the other end of the wire serves as a recording station, the glass cylinder repeating the impression given to the selenium cell at the sending end with stronger or weaker impressions over varying parts of the surface of the paper, according to the amount of light transmitted through the corresponding parts of the negative in sending. The process is said to promise excellent results on further development.

SHOWING PROOFS.*

BY E. J. MCCULLAGH.

ENVIRONMENT and conditions make new and alter old theories; methods of one studio may not apply to all, but my little spiel will have accomplished its purpose if it sets you thinking afresh on an old subject.

"To cook a fish, first hook him," then the quality of your proofs, the skill of the salesman and the size of the patron's purse determine the order.

But why show proofs?

A painter dislikes to exhibit an unfinished picture, yet we who ape him do it every day, or at least those of us who have a sitting every day.

Not many years ago one negative was made and developed before the sitter left the studio, and if technically good the order was closed there, the patron being satisfied with a good map of his features. But as the public became better informed, taste improved, and the photographer advanced from a chemist to a portraitist, with the result that nowadays the subject is carefully studied to get characteristic attitudes and expressions. To satisfy this desire, to allow the operator to show his versatility and to secure the largest order possible, we make from two to twenty plates, making necessary the showing of proofs.

Four years ago I tried to dispense with proofs by making finished pictures for inspection. Labor and expense were considerable, resittings did not diminish, neither did the orders increase.

There are many little personalities of dress, hair, expression, etc., about which the sitter has a perfect right to dictate, and the untoned proofs bring these to the attention quite as well as the finished picture.

Taking the best of plates, soften heavy lines, proof on paper that permits of deep printing to show high-lights and half-tones without bronzing or blocking the shadows; mail or deliver over the counter with the specific request that they be returned in person. With the proof enclose a neatly printed slip, something like this:

> Unfinished proofs from the Blank Studio. Kindly return promptly all of them, marking those you wish finished. Finishing from two or more proofs will be charged extra. Necessary alterations carefully made.
>
> BLANK PHOTOGRAPHER.

A ten-year-old boy can receive proofs and take orders, but a scientific, artful salesman will grasp the opportunity to create a desire for better finish from several proofs, and a larger quantity than the patron originally planned.

Salesmanship can be acquired by study.

Thin, flat negatives may be printed with greater vigor and many improved qualities, according to a suggestion made by "Simplex" in the *Photo News*. The idea is not wholly new, but the application of the film negative for the making of a partial transparency renders the working out of the process comparatively easy. The writer says:

"Take a piece of unexposed roll film, and print upon it from the negative to be improved. Develop but a faint image upon the film, then fix and wash in the ordinary way. When this thin film positive is dry, attach it to the glass plate negative so that it is exactly in register with the image thereon. You can now print from the negative, and the interposition of the thin positive will result in a considerably improved print. Care must of course be taken to insure that the positive is the merest ghost of an image, and a little experimenting may be necessary to obtain the best effect. It will be obvious that the faint veiling of deposit on the film occurs exactly where desired to retard the action of the light through the negative, and this tends to yield a print with far better contrasts than would be possible from the unimproved negative. This dodge is better than resorting to intensification, which, is usually somewhat of a risky undertaking, if any value attaches to the negative to be treated."

* Paper read before the Photographers' Association of California, June, 1904.

THE ST. LOUIS CONVENTION.

Universal Educational Advantages for Photographers' Benefit.

BY CHAS. W. HEARN, FIRST VICE-PRESIDENT P. A. OF A.

THE St. Louis Convention of the P. A. of A. this year will be the greatest since its organization. This statement is made upon information that would naturally come to the officers of the Executive Board.

Conventions are usually attended by even the more careless for the advantages derived in an educational sense from the lectures, demonstrations, and art exhibition, to say nothing of the social intercourse with the bright men from all over the country, especially if this be a gathering like that of the national, where these men are likely to be found. In addition to the carefully prepared programme which President Reeves is arranging for your benefit, there are a few features which seem worthy of especial mention.

First. Plans are being made to provide guides to enable parties to see the whole Fair in a systematic manner, during afternoons purposely left free from convention meetings. If there is a sufficient desire on the part of our members to visit the Art Palace, our president will be pleased to engage competent artists or art critics, who will accompany them, pointing out those pictures which possess the greatest merit from an artistic point of view, explaining art principles they exemplify, and noting their bearing on photography. This plan will be found more practical than cursory examination of the pictures without a guiding hand. Ideas are brought out in discussion, methods suggested for their accomplishment, and with a competent leader we may better arrive at a clearer understanding of them than in any other way. If you wish to progress in the art, this is a chance that comes but once in a lifetime.

Second. President Reeves has given his consideration to a suggestion of the writer, which will be inaugurated at the convention, and it is hoped that its usefulness will prove to be such that its continuance will be desirable. It is this: That at a session, or if that be impossible, a meeting in a committee-room will be called especially for reception-room attendants, which, however, will also be public. The object is primarily to awaken an interest among these assistants, mostly ladies, toward the acquirement of greater artistic knowledge, in order that they may become more competent in assisting their employer in his efforts to raise the standard of the work of the studio. They are ambitious and desirous of being a force artistically instead of being mere money-getters. Their ability in this direction might thus be materially augmented.

As things are now, it often happens that the operaror, after striving hard for effects, finds that his work is finished, trimmed, and mounted in a manner different from that intended. Upon inquiry he learns that it was so ordered from the office. There we find the customer desired it, and it is delivered as made, frequently in just the way it should not be.

There are of course studios where better control is secured, but in all large places it is different. Educate your reception-room attendant or help her to educate herself. Encourage her ambition, and have in her a helper who will be invaluable to you. Think these things over, and try to have your assistants at the St. Louis convention.

P. A. of Oklahoma and Indian Territory. A unique and very interesting prize, in the shape of a guaranteed Indian pipe, once the property of a noted chief, will be given to the winner of the interstate class. The trophy presented by the Association last year in this same class was a famous Indian war bonnet, which went to Messrs. Stephenson & Son, of Atlanta, Ga., for a group of pictures 16 x 20. The fee for entry in this class is $2.00, which should be sent to J. H. Gannaway, Secretary, South McAlester, Indian Territory. The pictures intended for competition should be sent to W. M. Oliver, First Vice-president, Oklahoma City, Oklahoma, charges prepaid, to reach him not later than September 12th.

THE WORLD'S PHOTOGRAPHY FOCUSED.

New Actinic Rays. Scientific researches carried on in many parts of the world have lately brought to light a number of new substances which seem to have a direct affinity to the photographic plate. Among these discoveries may be named radium, thorium, and those more lately exploited by Professor Baskerville, of the University of North Carolina, to which he gives the names of carolinium and berzelium. In this connection we are reminded of the experiments, now some years old, by which silver coins placed above a photographic dry plate and separated from it only by a black paper produced the image of their obverse sides upon the plate when developed. The same action is claimed for some of these newly discovered media without the use of electricity, and the question suggests itself as to whether or not the coin may be made to photograph itself in this way without any special medium other than those elements and attributes that may act upon it by reason of atmospheric contact or the distance of the several portions of the design in relief from the surface of the plate itself. Why may not a sufficiently long exposure produce such action upon the surface of the sensitive film. It is conceivable.

Prof. R. W. Wood takes issue with the old view that the color visible in a thin collodion film on a reflecting surface is a true thin plate color. Prof. Wood claims that they are due to the tendency of the collodion film to frill in drying, and thus to produce an effect similar to that found in the diffraction grating, pointing out that if a sheet of glass first chemically silvered by the reduction method and the silver film flooded with ordinary collodion diluted with from three to four times its volume of ether, remarkably brilliant colors will often be noticeable as the film dries. This theory of Professor Wood is wholly inconsistent with that advanced by Lord Rayleigh, in which he claims that a thin, even, transparent film on a perfect reflecting surface can show no interference colors.

Prussian blue transparency slides for window decorations or for lantern slides are very beautiful, and according to a writer in *Le Moniteur de la Photographie*, may be produced as follows:

First obtain a silver positive on a lantern plate. Wash well after development, and immerse, while still in the dark-room, in a freshly made 10 per cent. solution of potassium ferrocyanide. Another thorough washing should then be given and the plate immersed for a few seconds in a 5 per cent. solution of ferric chloride. It should then be washed again. It is important in making blue transparencies that the original silver image be bright and strong and quite free from all traces of fog or surface deposit.

Remodelling or Retouching? A writer in a recent number of *The Camera* makes use of the word "remodelling" as opposed to the practice of "retouching," and makes the very forceful claim that much of the work of the ordinary studio should be classed under the title of remodelling rather than that of retouching.

He tersely states the case when he says that

"What is really needed is that portraits shall be well lighted, well timed in exposure, carefully developed, and judiciously retouched."

It will be well for every photographer who sees this item to ask himself the question, "Am I, in my business, a retoucher, or a remodeller?"

The Optical Qualities of Vitreous Silica, as demonstrated in a paper recently presented before the Royal Photographic Society of London, by Messrs. J. W. Gifford and W. A. Shenstone indicate the possibility of a new medium of great value for the manufacture of lenses. The authors of the paper have made a number of measurements of the optical constants of the new material, which possess great uniformity of composition, combined with transparency to ultra-violet radiations, while, unlike quartz, it is not doubly refracting. It is believed that if the cost of this new substance is not prohibitive some important developments may be obtained in the manufacture of optical instruments.

EDITOR'S TABLE.

OBITUARY.—The death of Mr. HORACE W. TIBBALS, which occurred very recently at his home in Cuyahoga Falls, New York, removes a pioneer photographer, one whose work has brought him national fame and position. The portrait of President Garfield on the United States $5.00 bills was engraved from a photograph made by Mr. Tibbals and submitted in competition with twenty-four others for this purpose. The choice fell at once upon Mr. Tibbals' photograph, which was accordingly used as the basis of the engraved portrait. Mr. Tibbals had operated studios in Detroit, Akron, Jamestown, New York, and a number of other cities. He died at the age of sixty-eight years.

Mr. ISAAC W. BRADLEY, well known in photographic circles all over this country, died at his home in Dayton, Ohio, on July 10th, at the age of sixty-four years.

The deaths are also reported of R. Ç. KEETER, formerly of Indianapolis, Indiana, who died on June 27th, at the home of his brother in Danville, Indiana.

Mr. JOSEPH JEANES, Sr., died at his home in Chester, Pa., on June 16th, at the age of seventy-five years.

THE merits of the Pingree Electric Flash-light Machine have been persistently set before the readers of this MAGAZINE during the past year, and its claims upon the attention of the progressive photographer cannot be overlooked. The fact that it is in use in a very large number of the leading studios of this country is in itself a guarantee of its practicability, and that it is being adopted by an ever-increasing number we are assured by its manufacturers. Readers of WILSON'S MAGAZINE who have not had an opportunity to see this light perform its work are urged to do so whenever an opportunity presents itself. The light was exhibited last year at the New England Convention, and will doubtless be shown at the St. Louis Convention in October. This light puts a distinctly new power into the hands of the intelligent photographer.

The Art of Negative Making comes to us from the hands of the M. A. SEED DRY PLATE CO. in the shape of a revised and entirely new edition of their booklet on this subject, which has become familiar to the fraternity in recent years. The subject-matter of the former booklet has been revised and improved, while the typographical appearance of the booklet has been greatly enhanced. All photographers who are interested in keeping up-to-date with the working details of their profession should send for a copy of the new booklet, which may be had by addressing the M. A. SEED DRY PLATE CO., at St. Louis, Mo., or through local dealers.

Photography in Advertising forms the title of the *Photo-Miniature* for June, 1904, and offers an excellent opportunity for a most interesting dissertation upon the application of photography to what is perhaps one of its most prolific fields of usefulness. This book is full of suggestions to the working photographer, and ought to provide him with ideas for the working out of many a profitable series of advertising photographs in connection with the everyday work of his studio. A careful reading of this number is advised.

The Souvenir of the Seventh Annual Convention of the Photographers' Association of Texas is before us, consisting of a forty-eight page booklet with portraits of the officers, constitution, and by-laws of the Association, programme of the year's convention, and information of value to those attending. It is well gotten up, printed on fine coated paper, illustrated with a number of views of local interest, and well padded with advertising, which clearly indicates good business management on the part of its projectors. The successful outcome of the convention is well presaged in its publication.

H. A. HYATT & CO., of St. Louis, the well known and very popular dealers in photographic supplies in that city, desire us to mention that they have received the concession for the rental of kodaks in the World's Fair grounds, and that visitors may procure at reasonable rates the use of Eastman kodaks of any size up to 4 x 5 inches. They are located in the Official Photographer's Building on the Plaza, near the entrance to the Pike, and we make public this information with pleasure, in the thought that it will save many a visiting kodaker from the necessity of burdening himself with his own instrument for use in the grounds.

AMONG the most handsome as well as interesting exhibits at the Fair is that of the G. CRAMER DRY PLATE CO., located in the Palace of Liberal Arts, Block No. 53, at the intersection of Aisle G and Aisle 4. This exhibit, which is the only one of its kind at the World's Fair, consists of a large number of the finest photographs and a number of exquisitely beautiful transparencies, all made by the foremost photographers and artists of this country on the famous Cramer Plate. This exhibit must be seen to be appreciated, and we would therefore strongly urge any

of our readers who attend the Fair to be sure and visit this very interesting display, feeling confident that what they see there will amply repay them for their visit.

The Cramer Co. have advised us that they will be much pleased to have visiting photographers to the World's Fair call at their magnificent establishment at the corner of Lemp Avenue and Shenandoah St., where a most cordial welcome awaits any visitor.

MR. MILTON WAIDE, the mention of whose name is always coupled with the thought of the "One-man Method" is, we understand, to open a correspondence school of photography for sending out information concerning his pet theories. Further particulars concerning Mr. Waide's new venture will appear in the advertising pages of this MAGAZINE.

BURKE & JAMES, of Chicago and New York, have just issued a very sumptuous and complete catalogue of photographic apparatus, camera, and supplies, among which are also included stereopticon and magic lanterns. This catalogue is an extremely business-like publication of 216 pages, between the covers of which are to be found a very complete assortment of everything requisite in the photographic business. The goods are all classified. The catalogue is carefully indexed and very fully illustrated. We commend all who are interested in the purchase of new goods or accessories of any kind to write for this catalogue.

OUR readers will be pleased to learn that the forthcoming edition of the *American Annual of Photography* for 1905 will be replete with handsome illustrations and articles of the highest merit on the pertinent subjects with which photography has busied itself during the year of 1904. The *American Annual* will be issued, as usual, in November; but as the edition this year will be several thousand copies less than the 1904 book, it behooves the photographer and amateur to place his orders early, so that he may not hear the only too frequent remark of late years. "All sold out." The publishers inform us that the *Annual* can be had of all dealers as heretofore. The American distributing agent is G. GENNERT, 24 and 26 East Thirteenth Street, New York, where dealers are asked to forward their orders as early as possible.

THE *British Journal Almanac* for 1905 is now in preparation, and this mammoth annual bids fair to become as bulky, if not more so, than in former years. The book will have something over 1500 pages, incredible as it may seem In spite of its great number of pages, the price of the *British Journal Almanac* remains unchanged at 50 cents for paper, $1.00 for cloth binding, postage 28 cents, at which price it may be ordered from any dealer. Mr. G. GENNERT, the American distributing agent, 24 and 26 East 13th Street, New York, assures us that the American supply is positively limited to 2000 copies; and as this is only one copy to every six photographers in the United States, it follows that, as was the case last year, the book will be sold out before the supply is received. Photographers are urged to order of their dealer at once to avoid disappointment.

"COLLIER'S WEEKLY," one of the most progressive and most popular of the modern illustrated weeklies, published in its issue of August 13th a highly interesting letter accompanied with illustrations from one of its correspondents with the combatants in Manchuria. The interesting point in connection with this letter, and the one bearing on photography in particular, is the description given by the correspondent of his success under the most trying conditions, with the making of negatives on the march. The entire work was confined to the use of the kodak with films, and development was in every case accomplished by means of the developing machine. A total of over 90 per cent. of successful negatives is claimed, even under these most trying conditions. The article is commended to all interested in photography under war conditions.

WE are in receipt from GERHARD MOE, a practical tailor of Ladysmith, Wis., of a number of blueprints illustrating his method of applying photography to the obtainment of tailoring measurements. Mr. Moe writes us that he is using this method entirely in his large tailoring establishment, and that he is receiving many enquiries for its application in other establishments. Under this method Mr. Moe supplies the travelling canvasser, the country tailor, and the large city garment cutter with a photographic outfit, in which, immediately in front of the plate is a screen made to scale so that if the subject to be photographed is placed at a certain number of feet in front of the lens every measurement is recorded on the plate to a scale in inches readily figured out by the draughtsman. It is claimed for this system that it is not only rapid and accurate, but that it provides the cutting tailor with the peculiar characteristics of form and figure in each individual case, which under the ordinary system of measurement is impossible, and which it is claimed is very important. A study of Mr. Moe's system indicates that it has been worked out with a good deal of care and skill. It demonstrates another very important use for the camera in commercial work.

PHOTOGRAPHERS who are interested in standard photographic materials and supplies always read with confidence and interest the announcement of GEORGE MURPHY in the advertising pages of this journal. Mr. Murphy's business experience, covering the years from 1878 to the present time, is a guarantee of his knowledge, and those who have dealt with Mr. Murphy require no guarantee of his business qualifications. A full line of everything required by the photographer is always to be found at 57 East Ninth Street, New York City.

By Morrison, Chicago, Ill.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. OCTOBER, 1904. No. 574.

PHOTOGRAPHERS' ASSOCIATION OF NEW ENGLAND.

BY THE EDITOR.

THE Eighth Annual Convention of the Photographers' Association of New England was held in Boston, August 24th, 25th, 26th, and was the finest convention of this Association ever held. The New England Association holds a place next in importance to the National, and its conventions are attended by photographers from many distant States each year.

The quarters selected this year were in the spacious buildings of the Mechanics' Fair Association, and included ample space for the exhibition of pictures, for display of wares by dealers, and a large auditorium for the business meetings and addresses of the convention. A large number of photographers from all the New England States, from New York, and from the provinces were in attendance, and the whole spirit of the convention was one of progress and interest. The officers of the Association are to be congratulated upon the very gratifying results of their labors in getting together such a representative display and such a large number of active members. The convention placed itself on record in its support of the National Association by appointing its treasurer, Mr. S. M. Holman, a special delegate to attend the meetings of the National at St. Louis for the purpose of extending to the parent association a hearty invitation to hold its next Annual Convention in Boston in 1905. In taking this action the New England Association pledged itself to do all in its power to further the interests of the National.

Attention was called to the fact that it is now fifteen years since the National Association met in Boston, and a very strong movement is being made by the men of the Middle and Eastern States to bring the National Association there again.

Application was made by a number of photographers from the provinces for active membership in the New England Association, and the by-laws of the association were so changed as to include the maritime provinces in its membership.

The following officers were elected for the ensuing year, President, C. A. Johnstone, Hartford, Conn.; Vice-President, J. C. Bushong, Worcester, Mass.; Secretary, James Evanoff, Boston, Mass.; Treasurer, S. M. Holman, Attleboro, Mass. Vice-Presidents from different States: Vermont, A. D. Wyatt, Brattleboro; New Hampshire, G. H. Francis, Nashua; Maine, F. C. Chalmers, Bangor; Rhode Island, T. H. Mills, Providence; Provinces, G. A. Gauvin, Charlottetown.

The hospitalities of the Entertainment Committee were heartily enjoyed by the visiting photographers, and included, beside a vaudeville entertainment, a moonlight excursion to Norumbega Park, free admission to the Art Musum, which was kindly tendered by the managers.

President Tingley was made the recipient of a beautiful gavel with which he

maintained order and the dignity of his office.

The exhibit of pictures in the main hall was large and interesting, although the work shown was of a varied degree of excellence; the entire gamut from positively bad to thoroughly good was in evidence, with about the usual amount of medium quality. A feature which somewhat marred the general good impression on first entering the room was to be found in the fact that a number of the exhibits were hung in groups, unmounted, or mounted in a very insufficient manner, which gave the impression of haste and carelessness in getting the prints together. It would seem to be a reasonable expectation in such exhibits as these to find not only a careful selection of subjects but a most careful mounting and arrangement of the same for exhibition purposes. This feature in itself tended to degrade the more carefully prepared exhibits and to give an unfinished tone to the entire collection.

A good deal was heard on the floor of the exhibition hall about the advisability of a return to the medal system, or some equivalent for it, that will give the exhibitors something tangible to take home with them as an evidence of their success. Considerable comment was made upon the system adopted by several of the State conventions that have lately met, by which the successful exhibitors in these State conventions were awarded diplomas in accordance with a set rating, which diplomas entitle them to exhibit in the National Convention of the following year.

Plaques of excellence were awarded to successful exhibitors entitling them to the privilege of entering their exhibits at St. Louis this year.

The Aristo trophy was awarded by popular vote of the members to exhibit No. 13, from the studio of H. Randall, Hartford, Conn.

One of the interesting side issues of the New England Convention was a meeting of a considerable number of New York State photographers in attendance, convened for the purpose of organizing a State Association of their own. Several meetings were held, which resulted in a final organization of a State Association and the election of Mr. Pirie MacDonald as its President, with Colonel T. C. Marceau, First Vice-president; Dudley Hoyt, Second Vice-president; W. E. Taylor, Secretary, and Levi Moore, Treasurer.

The election of Mr. MacDonald to the presidency provided occasion for him to lay each man present under personal obligations to aid in the successful carrying out of the work of the association, and bespeaks for its future no small degree of success.

ADDRESSES OF THE NEW ENGLAND CONVENTION.

President George E. Tingley said, in part: We are, however, not the only child of the National Association. The family has increased until no less than sixteen State associations are now in existence, every one of which is doing its best to help any photographer who will consent to be helped.

Thus is the standard of professional photography being slowly but surely raised.

Attend the annual conventions of the profession. If unable to attend, keep up your membership just the same.

Send examples of your workmanship, even if they be not satisfactory to you. If only the very best work were to be seen at these conventions it would of necessity force all but one man to discontinue exhibiting; and, lastly, encourage and induce new men to join us until we have the whole fraternity within our fold.

Let every one contribute his share.

Let our ablest exponents show their fine examples as inspiring lessons for the humbler worker. Let the weaker contribute his best efforts toward the general good that is to be derived by comparison.

"Help ye one another" should be our motto.

The idea that only the very best artistic work should be submitted or exposed at these gatherings is, to my mind, all wrong. Who can be helped so much, and who in fact needs help so much as the man at the foot of the ladder?

As we raise the average of excellence among photographic workers, just so much do we raise the respect of the layman or artist for photography.

It should be our aim to not alone improve ourselves individually, but we should endeavor as well to stand by, assist, and encourage each other. Let us not live to ourselves alone!

The only way to preserve your knowledge is to disseminate it. This does not necessarily mean that you must instruct your competitor, but it will do any man good to be sociable, kind, and thoughtful of his neighbors in business. If friendly with and mindful of each others' rights, heart-burnings and rate-wars, productive of naught that is good and much that is evil, will be forever eliminated. Dissensions that disrupt; prices that produce poverty for ourselves and arouse the ridicule and disrespect of our patrons—which continually retard the rise of our profession—will be relegated to the rear.

Some two years ago a thought came to me which I have since held close to my heart. It was this: Should not the State associations extend their field of usefulness by sending the best of their exhibits to the Annual Convention of the Photographers' Association of America? To me it seemed from every point of view a most laudable and worthy plan.

This matter has been discussed at the meetings of your Executive Board, with the result that they approved it most heartily, and have, in an attempt to forward the plan, voted: "That we offer this year to members of the Photographers' Asssociation of New England whose work shall be deemed entitled to such recognition, an engraved plaque of excellence, attesting the fact that their work has been selected as worthy of being shown at the Photographers' Association of America at St. St. Louis in October, and we do urge them to allow the same to be sent there."

The selection of this work to be in the hands of a jury of your own naming.

It is expected that the ruling of this jury will be made on a very broad and liberal basis, thus assuring a very large and representative exhibit going from us.

At present we have no awards, no system of markings, no salon. As a result, it is becoming more and more difficult to induce our members to show their work with us. We take a pride in making the finest work possible, but after making it we appreciate having it honored. It seems impossible to continue much longer without a prize system of some sort.

In this way we shall honor a large proportion of our exhibitors and at the same time assist very materially in assuring the Photographers' Association of America a goodly portion of its exhibit.

ADDRESS BY PROFESSOR A. H. GRIFFITH.

Professor Griffith said: Each year I have been with you it has been a matter of criticism and only to find fault with your pictures. Now I come to point out the things which are good.

Then you possessed a camera, and you believed that it could do so much and no more. It was an inanimate thing; it was a piece of machinery, and you used it as such, but now you believe the thing has brains, and you are putting your brains behind the lens, you are putting gray matter into the paper, you are making pictures that ten years ago you never dreamed of.

There are throughout this country one thousand portrait painters, mapmakers, but very few who paint you as you really are; very few who give us that form and feature and personality that make us different from other people. As we now telegraph without wires, using unseen currents of earth and sky, so may the man who puts brains behind the camera be able to transmit to posterity the very soul that is back of that mask we call a "face."

A painter in New York wished to make a portrait of Richard Croker, but Croker was such a busy man he had no time to give him a sitting, but said he might paint him while he was at lunch, saying: "That is the best I can do for you." When the painter had finally finished he said: "This is not Richard Croker, but it is the best I can do." While they were talking a messenger boy came in and handed a telegram to Croker. He opened it and a new expression came over his face. He took a few rapid strides across the room and said: "Tell that man *no*." The painter said, "Oh, Mr. Croker, may I commence all over again? I never saw Richard Croker until this moment." He did, and if you

will go into the club of which he was a member you will see a portrait of him standing with a paper in his hand, and you will at once be impressed with the perfect likeness, for the whole energy expressed in that word *no* is there.

We find a man who looks at his work and says it is good enough for what he gets for it. I am not talking to that man. That man is making pictures for just what people are paying for them. He is never once saying to himself I can make better pictures than this. You must know other men's work. You cannot read too much, you cannot see too many pictures in order to know what is a good picture. No photographer should allow any opportunity to pass when he can obtain information of the best masters of every period. Try to understand the motive of their work, and find out what was their inspiration, for inspiration is the foundation stone of every kind of good work. We only advance in the highest walks of life by knowing the best things that have been done by others who went before. Each generation improves upon the work of the former by beginning where it left off. We find in every walk of life and in every profession men who fold their arms and wait for the world to recognize and applaud their ability, men who forget that work is only another name for genius. Every honest man should thank God that he gave him hands with which to work. There is something else needed besides the best tools and best materials. They will not do the work unless in skilful hands. The hands follow the dictates of the mind, and the mind must be trained as well as the hand.

How do you trim your pictures? We find some pictures very badly trimmed. An artist knows what to cut out of his pictures and what to add as well as he knows how to use his pencil. If you do not believe it go into your public Museum of Fine Arts and look at the painting by Abbott Thayer. After he had it painted he found he wanted eight or ten inches at the bottom to give proper proportion to his picture, and he added that much. You cannot do that with your photographs, but you can take a square piece of glass and put it over your photographs and look at it in various ways and shapes and see what you are doing. I see nothing wrong in your people sending out a dozen photographs, each one trimmed differently, thus giving a touch of your own individuality.

At the World's Fair at Chicago there was a picture which every one thought was a great thing. Not for its artistic beauty in the sense of detail, but in it there was a soul, there was a touch of pathos, there was that something which makes the whole world akin. It was "Breaking Home Ties," in which a mother stood with tears trickling down her cheeks whispering: "Be good my boy, God bless you." It was a picture that appealed to the people; it told a story, they could understand it, and therefore was great, though it lacked in some other qualities. Now you say "That has nothing to do with photographs." Aye, but it has. Five years' ago, at Milwaukee, at the National Convention and exhibition of pictures, there was one which received the greatest admiration. It was a picture of a mother and her child. Marvellously well done, beautiful in lighting, splendid in the gradation of light and shade bringing out all the qualities. People admired it and said: "wonderful, beautiful, but he had a magnificent model." Yes, he had two magnificent models, for it was of a mother and child; but greatest of all somewhere, sometime he had run across a picture of a mother and her child, Madame Le Brun and her daughter, and he used that as his model. True, it may have been stealing, but it was a valuable steal because he never could have reached such heights himself only as he had a magnificent example. Now, some of the rest of you can steal the same way, but first you must become acquainted with subjects produced by other men.

Out in your exhibition hall there are half-a-dozen pictures by a man whom all of you people look up to as a magnificent photographer. You say he is splendid, one of the best. You should go into his workshop and listen to one of his talks while he is photographing a subject, and perhaps you would catch his secret. Solid work is a good thing, talking is a good thing, exhibition is a good thing; but do not forget sometimes to watch results. This

man has in his workroom—and you have heard me say before never use the word operating-room. That is the most abominable word that photographers ever used. Well, in his workroom he has a scrap-book with pictures from all the old masters, and when you go in you may suggest to him some one of these poses, and he opens his book, and by and by he has a position that suits you perfectly, and photographs you after that manner, and then you wonder where he gets his models. He gets them right in his workshop. That man is a reader and a man who uses his eyes and works intelligently.

You ought to be able to take pictures that do not need to be retouched. Sometimes they are retouched so that there is not a single line or character left. Do as one man says: "Paint me as God made me, just as I am."

One man makes but eight sittings a day and no more. He will not make any until he becomes acquainted with you. When you go in there he talks religion, politics, music, art, something that is going on until he finds your face brighten. I will tell you how he took one young man. He was a nice fellow, had a good face, not what you would call handsome, but a good face, one that would please you. He takes him into his workshop and tells him to sit down. Not being satisfied, he says: "Get up, come over here, now go down and sit again. Sit down your way. Ah, but you are homely, except when you smile." That man made a marvellous picture simply because he caught him when he was not conscious of it.

Have a love for your calling. Labor is drudgery, drudgery is slavery, slavery is galling and degrading. Our work should be uplifting, bringing out the best and noblest thoughts and resolves, the very joy of life. Under proper conditions all labor can be made to do this if you will say, I know what I can do, I will make better pictures, I love my work, I would rather be in my workshop than out of it, I will go to the convention, I will look at everything I find there; I will study the pictures on the walls, and will do my best to make something to leave behind me telling the people I was a worker and thinker.

THE EQUIPMENT OF A MODERN STUDIO.

Mr. W. I. Scandlin, speaking on "The Equipment of a Modern Studio," after comparing the conditions and equipment of the past with those of the present, drew the conclusion that photography had not advanced in proportion to the other trades and businesses about it during the past fifty years. He cited the facts that when photography was at the height of its prosperity, in the old wet-plate days, its material equipment was primitive, and the whole process was full of difficulties and labor. That as time went on, cameras, lenses, and all the outfit necessary for the carrying on of the studio work improved, wet plates and unsensitized paper giving way to dry plates and prepared paper of all kinds. The number of studios increased rapidly, and, under the business conditions that governed the studio of the past, the decline of the profession soon took place.

He said that there was one and only one reason for this falling off in the prosperity of the photographer, and that reason was to be found in the lack of business equipment in the average studio to-day, evidences of which are apparent everywhere.

"The only part of a photographic equipment to-day in which we are shy is the mental part. This mental equipment of the studio cannot be bought of the supply dealer, as are camera, lenses, etc., but must be acquired by study of photographic literature, business conditions, and by all those things that the Photographic Association places before its members at conventions. The photographer must awaken from his lethargy and realize that he must get out into the open and view business from a wider range than he has ever dreamed of. There is a growing discontent with the policies of most of our recent conventions in the cutting off of medals or diplomas for successful work. The demand is growing everywhere for some tangible evidence that the photographer may take home with him from conventions by which he may establish a claim to the patronage of the public. The agitation of this question indicates an awakening to the necessity of publicity, and must in time come to be recognized by the conventions. Meantime

the wisdom or unwisdom of returning to the old system of medals must be determined by each convention for itself; but that the photographer of the future is going to demand something that he may put on exhibition cannot be denied. Our photographic fathers had less need than we of advertising, but they knew its value, and every winner of convention honors put them to the very best use.

It is daily becoming more evident that our aim must be not only to make artistic portraits, but to make money. For this we need not only material equipment, but more than all the business education that will enable us to use the improvements placed at our disposal by manufacturers, dealers, and inventors.

We must not forget, however, that every bad lot of work lowers the standard of the profession, and if only one out of every four derives an income amounting to as much as $500 a year, it is high time that the standard was raised. Conventions should get out and lift up the photographer, or the members of the conventions should go out and do him up. There is ample evidence that photographers are awakening to the necessity of improving the business end of their work. They are rapidiy going into modern buildings, adopting attractive showcases and modern methods of advertising, and are often joining with them some live business man whose entire attention is devoted to the creation of business for the studio. Almost every photographic journal in this country and abroad is taking up the subject, and if the conditions are to be improved every craftsman in the land must join in an endeavor to raise the standard of the mental equipment of the photographic studio.

MR. POORE'S ADDRESS.

Mr. Poore said in part: The question as to whether photography is to be reckoned among the fine arts is one which interests me less than the fact that among the workers in photography I find artists.

When I look at the well-ordered exhibition of the Camera Club or Salon or such as is displayed in these adjacent rooms I discover pictures which, in their selection or arrangement, tell me that their authors were guided by impelling principles which had steered those subjects from start to finish and landed them in the category of art, whereas in other hands they would have been unworthy of that honor.

When I see a result which is good coming from a succession of processes I know that the source must be right. In such exhibitions I frequently encounter pictures which give me the same æsthetic thrill and mental pleasure as reproductions from the old and modern masters, and I regard it only an ordinary form of honesty to make this acknowledgment.

Some little time ago I sat at a photographic banquet by the side of a man who, a guest as was I, told me he did not believe in art—that he would substitute the term *good work* for art. I did not think that that was the time or place to enter into an argument, so I put up only a conventional defence for art; but inasmuch as I believe that man to be a type of many workers in photography I feel I can do no better thing in such a presence as this than to attempt to puncture the fallacy.

Twenty-five years ago a number of far-sighted men in your profession discovered that beyond the limits of scientific photography there stretched a vast horizon, and this limitless space was the field of art. In order to penetrate it they found they must leave science behind. She gave them a start in any direction, but beyond her confines the adventure must be personal. Frequently they returned without a conquest until by experience they learned the laws of the realm; the men who have successfully operated on this territory have *all* obeyed them, consciously or unconsciously.

Good work! What does this signify? *The correct employment of first-class equipment;* rest assured the large manufactures of the very latest devices which make you dissatisfied with what you have because you know there is something better, the institutions of science which take your money and keep you poor will see to it that the "good work" end of it will be kept alive. If photography is in danger *anywhere* it is in losing sight of those principles of art which must join with all these perfected things to obtain a true result.

Good work! I served on a jury together with two photographers, and after select-

ing those things which made the strongest appeal as works to be honored, one of the committee in a number of cases said, "Stay, let me take this down and examine it at the window." There may have been a scratch here, or some one of the many technical trifles which photography is heir to opposing at some other point, which disqualified it, and so it was found that with this barrier we had given our prizes to second-rate pictures, and those of better construction, conception and true art excellence were passed by on technicalties.

Some one placed a book into my hand on Egyptian architecture, and I wondered what publishing-house had dared to put forth yet another on this subject, but as I turned its pages I became increasingly interested in its illustrations, and soon realized that they contained something far beyond the ordinary on this well-worn subject. I therefore inquired who had made the photographs which adorned it, and was told they were by the author, Mr. Perry, of Pratt Institute, Brooklyn. This explained it, as Mr. Perry together with Mr. Arthur Dow have been recently developing a system of composition based on Japanese art, which simplifies the subject, over three or four large flat tones. These subjects, therefore, had been studied upon that basis, and instead of snapping them without these considerations of composition, the light was waited for until it had developed by gradation of tones and the juxtaposition of large masses, the most artful combinations of chioroscura of which the theme was capable. Here then was that distinction between art and the sort of good work produced by the unthinking hack photographer.

Armed with the principles of art the photographer need not fight as one beating the air, and may eliminate chance, which plays so large a part in the work of the majority.

Mr. Poore then made use of the stereopticon, defining these principles, and applying them in practical cases to the portrait and single figure and to combinations of two figures, which he declared to be the most difficult of the problems of composition, and to the group. The argument followed the line of a brochure now appearing in *Photo-Miniature*, and is, therefore, not here given.

ARTISTIC LIGHTING.

BY FELIX RAYMER.

In my last article I handled the subject from the light side of the face, which is commonly known to operators as the plain lighting or the portrait light. But the portrait light goes further than one side of the face. When the lighting is once made correctly it will be a portrait lighting from any view of the face. It is not possible to have a lighting that will show perfect gradations, and action, concentration, and accentuation from one point of view and not show the same from any other point of view. If we but once get the lighting on the face right we can move the camera from one position to another, and the light will remain the same, as far as artistic merit goes. This I showed by drawings in our last article, handling the camera on the light side of the figure only.

In this article, however, I intend to pose the same subject at the same place in the room, and make the lighting as it was in the former article, and then continue the movement of the camera, and give directions for making different positions by simply viewing the subject from different points in the room.

I fully understand that there are operators who claim that each face should be lighted for itself, and I will agree to this. But it is an absolute impossibility to light each face just the same. If the operator were to attempt it he would make a failure. There are no two faces that catch the light the same, and the operator will deserve no credit for making them different, as he could not do otherwise. The only time I see a necessity for changing the opening in the light is when I want to accentuate some part of the face or figure, and to do

this I have to draw down the opaque curtains on my light, as the smaller the opening in the light the stronger the light and the greater the accentuation on some part of the subject. The larger the opening in the light the more light can enter the room, and the more that gets in the room the further around the subject it will circle, and the further around the subject it goes the flatter it will make the lighting, or softer, as some call it.

Again, I am aware that there are those who claim they never use the opaque curtains, mentioned above, on their light. It is claimed that as good work can be made without them as where they are used. This I do not dispute. But I do deny the assertion that as great a control can be had over light as when the curtains are at hand. If we place a subject under the light and allow it to fall in a flood all around it the result will naturally be very soft and delicate. But do we desire that *all* of our work shall be of the soft, delicate order? Would it not be better to have the light so curtained that we could control it and get any result that we wish? There are times when we wish to accentuate some parts, or, in other words, show some parts of the composition to be of greater importance than other parts. This is not possible if the light strikes all parts of the face with the same intensity, as it will, of course, make all parts more or less of a flat nature.

I have found, however, that this concentration of light and shade, using the open light, can be more easily managed under the single slant light, or the perpendicular light, than under the old double slant. The reason for this is that the old double slant style allows the light to fall into the room further, because it sets in the room further, and doing this it of course falls around on the shadow side of the face further, or rather, should I say, that it diffuses around on that side of the face further, unless the subject is posed quite a little distance from the light. This will, of course, require a larger operating-room than the average studio contains. With the double slant light I find that it is absolutely necessary that it be curtained with opaque curtains if the light is to be controlled at all and the room is a narrow one. The principle of the matter is that the further the light falls into the room, or the further it is set into the room, the further from it will the subject have to be posed to secure the right direction, and it will be remembered that the direction of the light as it falls on the subject is of the utmost importance as we consider it in working the light after the directions given in my last article. The one thing that I am asked about almost every day, and sometimes a dozen times a day, and the one thing that seems to agitate the minds of nearly every operator attending the conventions, is summed up in about three questions, and occur in the order given. "What style light do you prefer, single or double slant?" "What size do you think it should be?" "What pitch, or how far should it come into the room?"

All of these questions may be disregarded if the idea is followed of having the light, it matters not what the size, fall on the face from one source and from the right direction.

As to the style of light I prefer, my answer is always that I would as soon have one as the other, if they are of the *same size*. The great trouble with the average workman in deciding in favor of the single-slant light is that he nearly always puts it in smaller than he had the double slant, and in doing this he finds that the negatives made under it will not be as soft and delicate as they were under the double slant, for the reason mentioned above, that the light does not come so far into the room as it did with the double slant, and the lighting is, therefore, of a stronger nature. Again, it is necessary that we use more front light in working the single slant light in order to obtain the same delicate results. The whole scheme of lighting is made up of using side and top light, falling from the front of the subject. In the case of the double slant light we have the light coming into the room further, and it is not necessary that we use so much front light. It is, of course, essential that the light come from the front, but we do not have to bring it as much from the front as with the double slant. If we do bring it as far front as in the single slant, the excess of front light, in addition to the excess of light falling

across the room, will give a flat result. That is why we hear the saying so much that "front light causes flatness." It is because we have used too much front light with the top light which falls across the room and illuminates the shadows. With the single slant light, not having this excess of light falling across the room, as is the case with the double slant, we will have to get our softness in another way, and the only way we can do it is to have the light come in on the subject further from the front. In doing this we make our shadows shorter and thinner, which renders the soft effect desired. But the light will be falling on the subject from the same direction in either case, and that direction will be from a point in the light that will throw all of the shadows in the face downward at an angle of forty-five degrees. Notice the shadows, and if they fall straight downward you are using too much top light. If they are falling across the face horizontally you are using the light too low, or too much side light. In either case there are but two remedies: One to shift the curtains until the shadows take the proper direction, the other to move the subject further out into the room or nearer the light, as the case requires.

There is one thing that can be borne in mind to assist one in determining the right direction quickly, and that is the larger the source of light used the further from it the subject must be posed to get it falling on the face from the right direction. Of course, the smaller the source the nearer the light the subject will have to come, as, for example, when using a window, it will be found that the subject will have to be posed within three or four feet of the light in order to get it falling on the face from the right direction. Of course, in the large double slant we will have to be much further from it or use curtains, which will simply be another way of making a smaller opening.

Therefore, to sum it all up, we find that there is no difference in the lights, if we have a knowledge of what a lighting should be. We can make the lighting under one as easily as the other, after we know what it takes to make an artistic lighting.

The second question was "What size do you think it should be?"

It does not matter a particle what the size of the light may be. As good work can be made under one as the other. But it will be of a different class. As, for example, I stated above that with a large source of light a softer effect will be secured than with a small source. There is the answer to the second question. If you prefer snappy, crisp results, with certain parts accentuated, and rich shadows, they can be better obtained with a small light. Bear in mind that the smaller the source of light the stronger will be the effect in the lighting. It will thus be seen that a stronger effect is possible by the use of a window than would be the case with a light measuring eight feet wide. Although it is possible to secure just as soft results with the window as with any other source, to do it we will have to use either a reflector on the shadow side of the face to bring out detail, or the head-screen on the light side of the face to tone down the high-lights. In doing either of these we are using an outside agency, so to speak, to overcome a condition. If we use the reflector on the shadow side of the head we will not need the head-screen. If we use the head screen we will not need the reflector. Some say they do not like to use the reflector, but prefer to use the head-screen, claiming that the reflector destroys modelling. Others claim they do not like the head-screen, but prefer the reflector, claiming that the head-screen destroys the brilliancy of the high-lights. As for my own use, I at times find that the head-screen is advantageous, especially where the subject has an oily skin, which will throw back the light, giving rather a marble appearance to it. The head-screen softens this down. At other times I find the reflector better, and this occurs where the subject has a flesh that is dry and parchment-like. In this case I desire to raise certain parts of the face above others, and if I were to use the head-screen I would be flattening the whole face out worse than it was in nature. With the reflector I can use just enough to illuminate the shadows and still preserve the high-lights.

After close inquiry I find that those preferring the head-screen and advocating the

idea of doing away with the reflector are those who are using the single slant light.

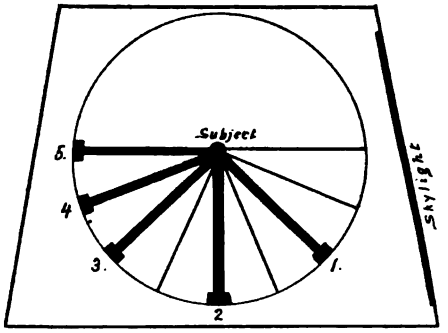
The reason for this is as above mentioned, that it is necessary to face the subject further toward the light, or, in other words, that more front light be used when working the single slant light. Less reflected light will consequently be needed to illuminate the shadows. All that is necessary is to place the white head-screen over the head, and the trick is done.

My experience shows that it is well to ascertain what kind of a light a man is using when he advocates any certain way of working it. The men who use the single slant work differently from those using the double slant. But in all cases we should be working for the same *results*. And the only way in which we can secure the same results is to have the same results to secure. To do this there must be some way that is the right way.

The third question is, "What pitch, or how far should the light fall into the room?" It does not matter. I would as soon have the light standing perpendicularly in the room as to have it drop in. While I have said that it does not matter as to the size of the light, I prefer one of goodly dimensions, for the reason that I can, by having it curtained, get any effect of light desired, from one of a very soft, delicate nature to one of extreme snap and contrast. This would not be possible if the light was a small one, for it would only give what its size was capable of giving, unless we used the head-screen or the reflector, as mentioned above.

For this reason, I say, it does not matter whether the light is a perpendicular, single slant, or a double slant light. The effect of the lightings made under them should be the same, and will be the same if the operator knows what it takes to make up a good piece of work. The key to the whole situation rests in the direction of the light. When the right direction of light has been secured the effect will be the same, it matters not under what style light it was made. Again, there is but one direction of light that will look the same from all sides or points of view, and that is a direction that is neutral, so to speak. In other words, one that is neither from the top nor the side, but a point halfway between the two extreme points.

I call the reader's attention to the drawing, which shows the positions of the camera and the posing of the subject. It



will be noticed that I have made a circle with the camera around the subject, using the subject as a pivot. After the lighting was obtained from the position of the camera marked No. 1 there was no change made in the posing of the subject. The only change made was the moving of the camera from one point to another. In my last article I told of making the lighting from the light side of the subject, and in making it the camera was in all cases, except the front view of the face, nearer the light than the subject. But in this diagram, and in making these views of the face, the camera will be placed on the other side of the subject, and consequently farther away from the light than the subject.

To more fully understand the directions for exposing from the shadow side of the face it would be better to go over the directions for making the light side of the face again, and these directions will be found in the July issue of this MAGAZINE.

I will only give the directions for making one position on the light side of the face so that it will assist the reader in understanding the shadow side. The camera was placed at No. 1 and the subject posed at a point in the room where the light would fall on it from the right direction. Then the face, if turned toward the camera until the ear on the shadow side of the face just fails to show, will give a three-quarter view. From this time on it will not be necessary to change the subject at

all. Move the camera to No. 2, and a full front view of the face will be the result, and the light will be as good as in the former position. Now, if the camera is moved to No. 3 we will have what operators have called the Rembrandt lighting and a three-quarter view of the face in that lighting. If we move to No. 4 we have a view of the face that will allow the nose to just pass the outline of the cheek, and it is a good view of the face sometimes, especially where the subject has rather hollow cheeks and high cheek-bones. The nose breaking across this outline will very much improve the effect. No. 5 shows a full Rembrandt profile, the subject not being moved in any way. In a subsequent article I will show half-tone illustrations and further demonstrate my views on artistic lighting.

If there are any among the readers of WILSON'S who would like to send me a print, after trying the ideas as set forth in the foregoing article as well as those to come, I will gladly criticise and suggest anything I can to aid them. This will be done by mail. I may be a trifle slow in getting to it, but the answer will come in due course.

THE SIMPLICITY OF THE CARBON PROCESS FOR PORTRAITURE.

AT the present time there seems to be a taste for photographs in almost every color except the old orthodox photographic color, and, of course, enterprising portraitists cater for it, and often by troublesome methods, such as by toning bromides, for example. But, after all, this is a clumsy way when a simpler is at hand. Those who have undertaken to produce, say, a dozen prints by this means—all of the same tone—are fully aware of the difficulty they will meet with. Now, with the carbon process there is no such difficulty, because tissues of almost every color of the rainbow are now on the market, and whichever one is selected all prints made upon it will be of exactly the same tint. It is thought by many that the carbon process by the double transfer method, by which the pictures are non-reversed as regards right and left, is troublesome to work. But why work the double transfer method at all? Why not produce reversed negatives? Then the single transfer method, the simplest of all photographic processes, may be used. There are many ways by which reversed negatives may be made. One is by stripping the film from the glass and printing from the reverse side. This method is troublesome, and will not, we think, appeal to the general body of portraitists. The portrait may be taken with the aid of a prism, either before or behind the lens; but a prism of good quality, suitable for a good-sized portrait lens, is a somewhat costly affair. But reversing mirrors are by no means so, as they may be had at quite a moderate cost, and when kept in a good state of polish add very little indeed to the exposure.

There is yet another method which entails no outlay whatever. It is simply to put the plate in the slide with the glass side toward the lens, of course, making allowance for the thickness of the glass in the focusing. As the glass now used for dry plates is so uniform in thickness there need be no difficulty from this source. There is no more difficulty in developing a plate exposed through the back than when it is exposed on the film side, but the appearance of the image must be watched for from the glass side, and not from the film side, density being, necessarily, judged in the ordinary way. It may, *en passant*, be mentioned, that negatives made in this way are free from halation arising from reflection from the back of the glass. It goes without saying that the back of the plate must be carefully cleaned before it is put into the slide. Once our reversed negative is obtained—by whatever means—the production of carbon prints from it in any color becomes the simplest of all photographic processes. All one has to do is to expose the tissue—which may be of any color—mount it on single transfer paper, and simply develop with warm water, and fix it in a solution of alum, and then we have a picture of unquestionable perma-

nence. There is one thing that may be mentioned in connection with the single transfer method and its advantage over the double, which is that the prints may be made on the coarsest surfaced papers, which is not possible by double transfer. An objection may be made to the fact that reversed negatives cannot be used for ordinary printing unless we are content to have the image, as regards right and left, reversed. But why not, at the time of sitting, if ordinary prints are thought to be necessary, take two negatives—the one reversed and the other the right way about? All modern studio cameras are fitted with repeating backs and double dark slides, and what is easier than to put in one plate one way and the other the reverse?—*British Journal of Photography.*

FLASH-LIGHT COMPOUNDS: THEIR POINTS OF DANGER AND SAFETY.

BY A. J. JARMAN.

AT the present time the use of compounds for the production of a highly actinic light in photography is greatly on the increase. The intent is primarily to obtain instantaneous photographs of objects and subjects which may be difficult to obtain by daylight. Not only is the use of these compounds increasing, but their number and different combinations are constantly growing. In the desire to secure great illuminating power and rapidity of combustion the danger of explosion has steadily increased, for it must be borne in mind that all these flash-light compounds should be regarded as explosives.

There have already occurred several fatal results from the explosion of some particular flash-light compound or other, and many in which quite a number of persons have had their eyesight affected or have become blinded for life by a premature explosion of one of these magnesium compounds. Previous to the use of magnesium and aluminium powders for the production of a suitable actinic light compounds of sulphide of antimony and nitrate of potash were employed, but these preparations gave way to metallic magnesium when it was discovered that when this metal was burned in the air or in an atmosphere of oxygen the actinic properties of the light emitted were of such a quality that it surpassed every other known substance for photographic purposes. The metal magnesium was first used in the form of wire, and many negatives of the very finest quality were produced upon wet collodion plates that hitherto it had been impossible to obtain.

With the advent of the rapid gelatine dry plate, in 1878, the use of magnesium for consumption in photography began to increase. It was soon discovered that this metal was capable of a great increase in the rate of combustion if it was reduced to a powder and blown into or through a flame in the same way as lycopodium was used to produce artificial lightning upon the theatrical stage. This was the beginning of the present day flash-light powders. The duration of time for the burning of about twenty grains of pure magnesium powder is the seventh of a second. This was found to be too long a time for the production of photographs of any object in motion, so mixtures of various oxygen salts were made with the powdered magnesium, which still further increased the rate of combustion. Just as this rate of combustion has been increased so has the danger of the compound grown with it. The introduction of gun cotton as a fuse for the more rapid ignition of these compounds is a further source of danger, and should not be stocked in combination with any of the flash-light compounds.

More recently some of the compounds of phosphorus have been added, with the object of still further increasing the rate of combustion. The great affinity which exists between the high electro-positive metal magnesium and oxygen is the primary cause of their rapid combustion during ignition. Any substance that aids this

action only adds to the increase of explosive properties.

Any attempt to add any of the sulphides to such a mixture would at once form a mixture as explosive as gunpowder. When a compound of magnesium powder and chlorate of potash is mixed it should be done only in small quantities, because should even a piece of charcoal or a few grains of sawdust be present ignition may take place and an explosion follow from friction alone. The intense white smoke that results from the burning of magnesium is the oxide of that metal. It can in a great measure be absorbed by igniting the mixture under a hood lined with thin asbestos well wetted with water. A light and convenient arrangement can be made to suit any magnesium flash-light apparatus by the above means where the production of the smoke is objectionable. The safest way to handle these explosive preparations is to keep the ingredients separate until a short time before use, mixing them upon a piece of hard glazed cardboard with a bone knife.

The following is a good compound for flash-light work. Fifteen grains of it require only the one-eightieth of a second for complete ignition, which for safety and rapidity of ignition should answer the requirements of any kind of flash-light work. The flash-light operator should at all times stand as far as possible from the mixture when fired, especially when a large space has to be illuminated:

Potassium Chlorate . .	2½ ounces.
Potassium Perchlorate . .	2½ ounces.
Magnesium Powder . .	3½ ounces.

Mix the two potassium salts in powdered form together, and a short time before use mix with the magnesium. A small piece of pyroxyline may be pulled out into a straight line, with a strip of celluloid attached as a fuse, and placed upon a shallow sheet-iron tray. The required quantity of the above mixture may be spread upon the top of the pyroxyline and fired either by igniting the celluloid fuse or by applying a lighted taper at the end of a yard-stick, taking care not to look at the mixture at the time of ignition, as the light is exceptionally brilliant and would surely affect the eyesight. If the above precautions are taken successful flash-light work may be done with perfect safety.

STORING NEGATIVES.

THE problem of storing a large number of negatives confronts the photographer of to-day on many occasions. The following article, reprinted from the *British Journal of Photography*, offers a valuable suggestion and one that if adopted may save life and property. We commend a careful reading of this article to all whose business is such as to entail the storage of a considerable quantity of glass at any one time.—[ED. W. P. M.]

Discussing, with a well-known member of the profession, the question of the various modes of storing negatives adopted by professional photographers, we were not a little surprised to hear him say that he did not think that the storage, at any rate of portrait negatives, was worth the trouble and expense involved, the public taste being so capricious that negatives were, save those of public characters, rarely needed for replicas, except in the case of a death, and that it was a poor game to keep thousands of negatives on the chance of some one or two of the originals dying within the next dozen years and their friends ordering half a dozen copies. This view, of course, could only be founded on personal experience, and to formulate a general rule from a particular instance would in the present case be rather illogical and very unwise. Further, it is obvious that, even granting the existence of a capricious public, the demand, or the absence of demand, for repetitions must be largely influenced by the character of the clientèle. A business which relies mainly on chance sitters does not require any thought to be given to the storage question, while, contrariwise, one made up entirely by connection may find the gradually increasing store of negatives to be a very valuable property.

Speaking generally, however, there seems to be a consensus of opinion that the business of the portrait photographer has gradually been undergoing a radical change since the time when the production of a negative, from being an operation of some moment, became an affair of mechanical simplicity—as the production of the dry-plate has caused it to be. A sitter, then, was satisfied with a single proof, or he paid extra for further choice; now, he wants them by the half dozen, with retakes gratis, even for the comparatively limited number which we are told are usually printed for a single order. Hence, the negative is cheapened, in a sense, and its storage more costly, and the accommodation required more ample. Granting, however, for the nonce the need—or shall we say the desire?—to save negatives from which prints have been issued, it becomes a matter of some moment to decide how the storage can be best and most economically carried out. For this to be efficiently done it will be necessary that any particular plate required can be most readily found and handled with the least expenditure of time and labor before putting in the printing-frame. It would not be possible to describe every method we have seen in use; but a brief reference to what have appeared to us most popular and desirable may be useful.

At the outset a word of warning must be given, as a case which occurred in the provinces some time ago showed was desirable. New up-to-date premises were being erected, including an upper story for an accumulation of negatives. The building was not constructed satisfactorily, the walls were new, the negatives numerous and weighty, the result, collapse of the walls through the weight being concentrated in the most unsuitable spot. Ten or twelve thousand negatives is not a large number for a business worked at "popular prices;" but they would weigh a ton. Fifty thousand would therefore weigh about five tons, and before such a weight was placed upon any floor whatever an architect should be consulted. It is not a question of what a floor ought to bear so much as what it is likely to be able to bear that has to be considered. We have in our mind an instance that we have come across where the most had to be made of a small room on the first floor. The negatives are ranged from floor to ceiling, the walls being entirely hidden, door and window being the only uncovered portions. Here a line of three-inch planks was placed on the floor all around against the wall, and the racks for the negatives were placed upon them, first, with the object of distributing the weight, and next, to prevent the racks becoming legal "fixtures," to effect which they were simply kept in place by being wedged against the ceiling rafters. Then, in the room below his negative room, and without cellarage, a similar line of planks was placed, and on them were erected other planks as pillars supporting still others pressed against the ceiling rafters. Thus the whole weight of the negatives rested upon the solid earth, and, being kept in a perfectly perpendicular arrangement of weight, there was virtually no tendency to side-thrust to endanger the walls. All these precautions were considered on account of the studio proper being, as often happens, an added story to what, at the outset, was a two-story building.

To complete our description we should add that there was a similarly supported beam placed under the middle of the room and reaching from side to side to receive the weight of a central erection in the negative room, and which contained a large number of plates.

We have felt justified in describing this particular example at length, and in laying stress upon the necessity of precautions being taken to ensure the stability of premises where a large number of plates may probably accumulate, from a feeling that the matter is one that may be readily lost sight of in the growth of a business, and, further, that the result of want of foresight might bring about pecuniary disaster, or, what would be infinitely worse, danger to human life in the case of a collapse similar to the one we referred to.

The Official Report of the National Convention at St. Louis in early October will be published in full in the November number of this MAGAZINE. This is in accordance with the old-established policy of the MAGAZINE.—[EDITOR W. P. M.]

ITEMS OF INTEREST.

What is it that Makes a Picture? In general, we may say the important factors are embodied in the motto: (*a*) "Unity, (*b*) Simplicity, (*c*) Breadth."

(*a*) All things in a picture should pull together—Unity. The whole should balance either in mass or interest. Balance does not imply masses equally disposed about a centre—a small mass far away may pull as much as a large one near at hand. Variety, too, must exist, for monotony walks hand-in-hand with failure, and artistic feeling resents the bounds of formal arrangement.

(*b*) Every picture has some chief object, and to this all things else pay tribute. A picture should arrest the fleeting glance, lead it to the centre of interest, tell its story and awaken in the mind a chain of recollection or a play of fancy that imbues it with an interest, fictitious, perhaps, but fully designed by its author, the artist. Hence, simplicity.

(*c*) Breadth, by suppressing irrelevant detail, concentrates attention and adds force to the picture idea.

These factors contribute to make the "composition" of the picture, and the artist is known not only in choice of subject, but he reveals himself in his way of handling it.

Add, then, to composition, unity, simplicity, breadth, and to these tonality, by which changing effect of atmosphere and subtle play of color may be suggested even in monochrome, conjoin the whole with skilful technique which is skilful just insomuch as it succeeds in concealing itself, suffuse the whole with the fire of individual artistic feeling, and the product, whether by brush or lens, may fairly be esteemed a work of art.—*The Photographer.*

M. Curie's Experiments with Radium Emanations. In a paper recently read before the Académie des Sciences, M. Curie brings out some of the physiological effects of radium. The emanation given off by radium causes the death of the smaller animals when breathed by them. He used an apparatus in which the animal is placed in a confined space and is made to breathe air which is charged with the emanation. A large jar is filled to one-third with pumice-stone soaked with potash. Above this is a support which confines the animal (a guinea-pig) in the upper part of the jar. Oxygen is introduced into the jar to keep up the animal's respiration, while the carbon dioxide which he gives off is absorbed by the potash. The radium emanation is sent into the jar by another tube at the beginning of the experiment. At the end of a certain time, varying from one hour to several hours, the respiration of the animal becomes short and abrupt; he rolls himself up in a ball with his hair standing on end. Then he falls into a profound torpor and his body becomes cold. Before the animal finally succumbs his respiration has fallen as low as six per minute. The effects of ozone are eliminated in this case, as it is transformed to oxygen by the potash.

An examination of the animal showed an intense pulmonary congestion. The composition of the blood was modified, especially as regards the white corpuscles, and their number is diminished. The tissues of the animal are found to be radio-active. When the body of the guinea-pig is placed on a photographic plate wrapped in black paper, it gives an image in which the hairs are very clearly defined. All the different tissues have a photographic action. The hair shows the greatest effect, and the skin but little. The heart, liver, and brain possess this property, and especially the lungs. This action may be due to two causes, according to M. Curie: either the induced radio-activity of the tissues or the presence of the emanation dissolved in the humors of the body. In the above experiments he shows that radium has a toxic action not only when applied to the exterior of the body, as he already observed, but when it is introduced into the interior of the body by respiration.—*Scientific American.*

The Reciprocal Value of a Signed Statement. Good credit in the markets of the world enables every merchant to add to his ability to do business. It gives him

the use of enlarged capital, thus enabling him to carry a more complete stock, increase his sales, and magnify his profits.

Large assets are not always necessary to the creation of credit; what is most desirable is, that credit be in proportion to the actual assets and in harmony with conditions which create and maintain it. A merchant's capital is the sum of his net available resources plus his credit.

Worth Remembering. Tacked up in a prominent place in one of the largest local wholesale concerns are the following suggestions to clerks. They are pointed and worth following, therefore we reproduce them:

Find the easy, the quick and safe way to do things. By this method you can learn to accomplish 10 per cent. or even 25 per cent. more results by the same expenditure of strength.

Let nothing go over for to-morrow that ought to be disposed of to-day. Let no customer, or possible customer, who expects to hear from us in the morning, or by the next mail, be disappointed.

Over the telephone be especially polite, so as to bring yourself in contrast with many telephone operators, office boys, and others who seem to insult you because they are at a safe distance.

Study your work so as to constantly make it quicker, safer, and better. Go to your chiefs with suggestions for the improvement of the service.

Misrepresentation may sell goods, but it never will make customers. The first sale it succeeds in making will be the last one so far as that particular customer and his friends are concerned. The world may like to be humbugged, but not more than once at the same place or in the same way.

Not one little mental acquirement will be more valuable to you than a memory for names and faces.

It ought to be extremely difficult to prove that your interests are not identical with those of your employer.

When not engaged, keep your eye on the front door. That is the place at which customers enter, and customers are always pleased with prompt attention.

Be tactful. Throw your whole intellectual energy into the study of the art of managing people, and exercise every atom of your common sense in putting what you learn into practice.

Post yourself upon the stock. Have qualities and prices at the tip of your tongue. We like to buy of a man who appears to know all about what he is selling. And then, too, how can you sell to profit if you be ignorant of your wares?

Make just as many customers *your own* as you can without injustice to your employer or your fellow salesmen. To have a man or woman who enters the store ask for you has a definite cash value as well as a bearing upon your future promotion.

Study your customers. To be acquainted with their tastes, their financial ability, and their dispositions, is to be able to get the largest orders compatible with the interests of your employer. — *Twentieth Century Photographer.*

The Photographers' Association of the Northwest held its annual convention at St. Paul, August 2d, 3d, and 4th last. Nearly two hundred photographers were in attendance from Minnesota and the neighboring States. The convention was a decided success from all points of view. Duluth was chosen as the meeting place for the 1905 convention. The following officers were elected: President, Mr. J. R. Zweifel, Duluth, Minn.; Vice-President, Mr. S. P. Eggan, Minneapolis; Secretary, Mr. J. C. Jansrud, Willmar, Minn.; Treasurer, B. C. Golling, St. Paul.

The Vice-Presidents for the several States included in the association were appointed by the President, as follows: Wisconsin, Mr. S. A. Johnson, of Phillips; Iowa, Mr. J. A. Douglas, of Osage; North Dakota, Mr. J. E. Pasonault, of Cando; South Dakota, Mr. M. E. North, of Watertown.

A notable feature of the convention was the official recognition accorded to the importance of publicity in the studio work, and the association went on record with a vote to reserve space at its next convention for a display of the advertising matter used by the different studios through the coming year.

By J. W. Roshon, Harrisburg, Pa.

By Godfrey, Chicago, Ill.

By J. W. Roshon, Harrisburg, Pa.

By J. W. Roshon, Harrisburg, Pa.

By Godfrey, Chicago, Ill.

By Geo. W. Leeds, New York City

By Godfrey, Chicago, Ill.

By H. F. Walbridge, Pittsburg, Pa.

SHOW-CASE DISPLAYS.

BY W. FOSTER BRIGHAM.

THE question of display is of the greatest importance to all professionals. In many instances the exhibition of specimens in outdoor cases is the only means of publicity available, and a judicious arrangement of specimens in hallway or door may in skilful hands be made more effective than a window display. The latter is, of course, a great attraction if it can be done properly, but it must be kept filled with none but the best work, and this should be constantly changed. Many photographers, however, cannot bear the expense of constant changes of large specimens. In these cases a window is more of a drawback than otherwise, the display often becoming slovenly and ceasing to attract because of repetition. Cases need only be filled with small mounted specimens of various sizes. Needless to say, these can be made to look well at far less cost than when enlargements are necessary.

With window displays—judging from the different treatment we have seen—a crowd of specimens is to be avoided. Two or three large pictures on easels and a few small things always look more pleasing than a jumble of cabinets and twelve by tens.

Really good colored work is a great help, but it must be good. Judging from specimens shown, some photographers have less good taste than the public. My professional readers with artistic aspirations will agree that that is saying a lot.

Show-cases should always be kept clean and bright. Except in a few positions, a small but select case is to be preferred. Very large cases (10 feet by 8 feet) or very small (3 feet by 1½ feet) are difficult to fill. In large cases a framed enlargement in monochrome is sometimes allowable. Large photographs, say 12 by 10, and panels are better adapted to such a case than cabinets, which would look somewhat niggling.

We made a striking show in a large station case recently by using a 30 by 40 frame as a centre, and surrounding it by a line of 12 by 10 and panels of various shapes, narrow and broad, ovals, circulars, etc.

As a rule, a case should only contain one color or process at a time. Nothing looks worse than a case full of different colored prints or mounts. The effect is always patchy and disagreeable. Variety must be obtained by arrangement and by using numerous sizes and shapes; 12 by 10 panels and cabinets should be intermingled. A whole case of one size is very disagreeable. It is "repetition without variety."

Some firms show carbon prints of different colors together. The colors of carbon tissues being generally very positive, the result always jars. If the different colors must be shown the case should be divided into two or three panels (not more) with ribbon or anything else which will suggest a separation.

I find myself that a perfectly symmetrical arrangement is by no means displeasing to the general public, although it is so distasteful to the artist. Unsymmetrical arrangements seldom appear to be liked. However much care and time are expended over a methodical confusion, the result is regarded as untidy and careless. For our part, therefore, we try to find a happy mean and to please ourselves and the public simultaneously, for the photographer must never forget that his first care is to please the public.

We usually adopt a seemingly symmetrical arrangement, which on examination proves to be composed of unsymmetrical units. There is a skeleton geometrical pattern running through, but the photographs used for filling in are picked to fill the space not to form any preconceived pattern.

Those who make some particular specialty a strong feature will do well to keep a case for that alone. I know of one very large case which was quite useless until it was kept for showing 15 by 12 enlargements of dogs. Now it receives a lot of attention. A few selected enlargements of children, horses, or any one particular

class of subject appear to be more taking than a miscellaneous gathering. This idea of keeping a case to one subject at a time deserves attention from all who study efficient advertising. It is a further subdivision of the one-color, one-process idea referred to above. A succession of shows following one another at intervals of days or weeks, illustrating, say, gentlemen, ladies, children, old age, groups, animals, and so on, arouses more interest than divided efforts.

If two or three processes are worked, rapid changes may be made from one to the other. If accompanied by a short note of the characteristics of the process it would rivet attention. The first collection shown might be one of albumen prints with a short historical note. Then platinum prints could follow, pointing out that they are absolutely permanent, calling attention to their beautiful color, etc. These might be followed by carbon prints with a note as to their characters—permanency, range of colors, and so on. In the latter case if prints of various colors are to be shown, mounts of a tint to suit all the colors to be shown must be selected.

The popular vellum are the best for this. Also, the dividing of the board into section schemes should be carried out by using drapery or a stencilled ornament.

At a pleasure resort a constant change of specimens is very important. The population changes almost entirely in a fortnight, so that in this case the different sets can be quickly run through, and then commenced with again.

The best attraction for the public we have ever been able to put before them is one we have recently carried out. It was so successful that we commend the idea to all photographers of long standing. Established in 1864, and having most of our negatives since then, we selected the most curious up to about 1880. These were printed in albumen, enamelled with collodion, and mounted on the black and gold bevelled mounts which were once the fashion. The whole thing looked so old fashioned, and the dresses and head gear and hirsute adornments were so quaint and peculiar to modern eyes that there was a constant group before the case. We can heartily commend the idea to all those who may be in a position to carry it out.—*Photography*.

The American Aristo School at the Boston Convention was one of the most interesting and instructive features of the entire convention. The school was quartered in an excellent suite of rooms in close proximity to the lecture hall, and was visited by large and enthusiastic groups of convention members at every demonstration. It suggested to the old conventioner the old-time aristo schools at the Celeron conventions of the National Association, years ago. The results of this instruction will doubtless be apparent in the work of the New England men for years to come.

Photolinol. Some interesting demonstrations have been carried out in London with a new photographic art material called "photolinol." This fabric is composed of linen, which is thoroughly permeated with the photograph, producing a high translucency. One very picturesque effect obtained by this means is that the picture, when colored and viewed with a reflected light, bears a very strong resemblance to an oil-painting, the lines of the weaving of the linen appearing similar to the canvas in a painting. Photolinol is waterproof and indestructible, while the photograph does not fade in the sun, as it appears to be woven into the material. By its aid much greater enlargements than are now possible can be made with ease. The fabric can be made to any size, some of the enlargements shown being ten feet square. It is applicable to an extensive variety of purposes. As it is transparent, it can be adapted to lamp shades and other ramifications of photographic art for which transparencies are now employed. Novel results can be obtained with it, for the picture appears with equal distinctness on either side by either reflected or transmitted light. The process is a secret one, but its commercial utility and value are already asserted, since it can be employed for curtains, screens or theatrical scenery. For the latter it is peculiarly adapted, and is both cheaper and more durable than hand-painted scenery.—*Scientific American*.

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The seventh of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of W. M. Hollinger, of New York, are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

MR. HOLLINGER is a successful innovator. Beginning business as a tintype worker "in the West," he soon longed for a more important field, and came to New York at a time when it was "overcrowded with photographers." He had the almost unprecedented assurance to begin work in a room that was not a studio, to use technical methods that were entirely new in professional photography, and to introduce a business system that was revolutionary. He succeeded.

He was probably the first professional to quote all prices for single prints only and to refuse to have anything to do with a rate per dozen. He was probably the first to refuse to accept money until the sitter was satisfied. If anyone wishes to sit to him he will make an appointment, expose a few plates, and will send home one print from each negative which he approves. From the others he will not show proofs. The sitters may keep all, or any, of the prints, price $3.50 (fourteen shillings and sixpence) each; or may return them all, in which case the transaction is at an end, and no re-sitting is given. If a sitter wants more than one print of any negative, the second and following copies are $2.50 (half a guinea) each. The sitter cannot choose the size or the mounting of the print in advance (though Mr. Hollinger will oblige to a certain extent), for these are held to be matters for the artist only. Thus, though the exposure is made on 7 x 5 or 10 x 8 plate, the print may be full size or may be only a strip of three or four inches by one or two. At times when children are taken together for a group the most successful picture may be one child only, cut from a group in which the others moved or posed awkwardly. This insistence upon his own way, backed by a power of selection that commands respect, has been one great secret of Mr. Hollinger's success in dealing with a cultured and very critical set of people. Though he was ridiculed by photographers when he first showed the front of a girl's head, trimming away all that was behind the ears, it was a piece of selection which time has justified.

Children are great favorites with Mr. Hollinger, who has a hundred and one tricks and methods for their management. These constantly change. At the time of my last call the most successful entertainment for young boys was "the Indian Magic Fire Stones," a handful of chipped flints picked up from one of the heaps left by the knappers who made arrow-heads. A demonstration of how these could strike fire from the back of a knife-blade, and the presentation of one of the flints, secured the interest and co-operation of the most difficult boy. For nervous children with whom nothing satisfactory could be done, there was the trick of pretending that the sitting was over, talking with the mother or nurse, and photographing the child, quite unaware, while absorbed in its own pursuits. This is rendered possible by Mr. Hollinger's refusal to stick to any exact size or arrangement, and some of his very best studies of children have been made in this way.

The studio is a large, high, practically square room, with a big side-light facing almost due east, and flooded with a sunlight in the morning time. The blinds are practically unused; and after being

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THE PORTRAIT AND THE STUDIO

The work of W. M. Hollinger, New York City

arranged in the first two or three days of October, when the season begins, they remain untouched, save for dusting, for nine months. The sitter's chair is placed on a small movable platform, and drawn from place to place to secure varied lighting, and even direct sunlight on the face is sometimes used—with striking success.

Mr. Hollinger's prints are all in platinum or carbon—the former preferred. He is probably unequalled, and certainly unsurpassed, for richness of detail and range of tone, which he carries into the strongly-contrasted high-lights and deep shadows of many of his pictures. Yet he never develops a plate personally, except at the beginning of the season or when doing a bit of hobby work; and the same brand of plates are always used (not because they are the best, since he does not know whether they are best or not, but because they are good enough), and always give the required results. As a recreation Mr. Hollinger has done a good deal of photography of flowers; and the extent to which the methods used for his human sitters has proved successful with the "still life" objects is absolutely startling.

Mr. Hollinger has done a good work for professional photography by showing that there may be striking individuality and originality without eccentricity, and that the individual print system can be made a commercial success. His technical lessons are: 1. Leave your blinds and curtains alone, devoting yourself entirely to sitter and camera; 2, make a correct exposure on a known plate, then any good youth can develop it, and 3, light, expose, and develop properly, and you will need very little retouching. No. 1 saves operator's time; No. 2 saves principal's time; No. 3 saves retoucher's time; and by means of these three savings Mr. Hollinger is able to do all the operating and all the retouching, to decide the trimming and mounting, and to inspect every print in a large business.

THE INFLUENCE OF THE CHARACTER OF DEVELOPERS ON THE SIZE OF GRAIN OF REDUCED SILVER.

BY MM. A. AND L. LUMIÈRE AND A. SEYEWETZ.

FOLLOWING many works on the subject, it has up to the present been generally admitted that the size of the grain of reduced silver in gelatino-bromide plates is uniform whatever be the developer used. Abney has, moreover, found that the size of grain of reduced silver in an over-exposed plate is finer than in the case of the same plate normally exposed, and also that additions of alkaline bromide apparently increase the size of the grain.

Having obtained with some less energetic developers very transparent images of a color differing greatly from the ordinary, we thought that there may be a relation between the size of the grain and the color of the deposit.

In order to verify this idea, we compared, for size of grain, silver reduced by the principal known developers, not only normally composed, but also by experimenting with the same developer in different degrees of dilution, in different duration of action, at different temperatures, and in different degrees of alkalinity. We also investigated the modifications determining variations in exposure, as well as the results of decreased or increased development.

A.—INFLUENCE OF THE CHARACTER OF DEVELOPER.

Developing solutions were prepared of normal composition as usually employed and with the following developing substances: Hydroquinone, pyrogallic acid, dianol, metolhydroquinone, quinomet, eikonogen, glycin, paranol, ortol, edinol, adurol, hydramine, and pyrocatechin.

In addition to the preceding developers, which comprise nearly all the developers ordinarily employed, we have tried others which are seldom used, owing to their weak developing power. These latter appeared particularly interesting from the fact

that the reduced silver gave with them images of special colors.

Examples of these weaker developers are paraphenylenediamine and orthoamidophenol used with sulphite of soda alone. These developers give by reduction an image of great transparency and of a brownish color by transmitted light, and gray by reflected light, much akin to that obtained by the development of collodion emulsions. We give the composition of the various developers employed.

Hydroquinone.

No. 1.

Hydroquinone	10 g.
Anhydrous Soda Sulphite	40 g.
Anhydrous Carbonate of Soda	55 g.
Water	1000 c.c.

No. 2.

A.—Hydroquinone	10 g.
Anhydrous Soda Sulphite	30 g.
Water	500 c.c.
B.—Tribasic Sodium Phosphate	80 g.
Warm Water	500 c.c.

Use 50 c.c. sol. A and 50 c.c. sol. B.

Pyrogallic Acid.

No. 1.

A.—Water	500 c.c.
Anhydr. Sulphite	50 g.
Pyro acid	14 g.
B.—Water	500 c.c.
Soda Carbonate	50 c.c.

Use 50 c.c. sol. A and 50 c.c. sol. B.

No. 2.

Water	1000 c.c.
Sulphite	100 g.
Tribasic Sodium Phos.	90 g.
Pyro Acid	40 g.

No. 3.

A.—Water	1000 c.c.
Sulphite	100 g.
Pyro Acid	40 g.
B.—Acetone.	

Use 75 c.c. water, 25 c.c. sol. A, and 10 c.c. Acetone.

Eikonogen.

Anhydr. Sulphite	30 g.
Carb. of Potash	30 g.
Eikonogen	35 g.
Water	1000 c.c.

Metol.

A.—Water	1000 c.c.
Anhydr. Sulphite	50 g.
Metol	10 g.
B.—Water	1000 c.c.
Anhydr. Carb. Soda	10 g.

Use 50 c.c. sol. A and 25 c.c. sol. B.

Metol-Hydroquinone.

A.—Distilled Water	400 c.c.
Metol	2 g.
Anhydr. Sulphite	20 g.
Hydroquinone	25 g.
B.—Distilled Water	400 c.c.
Carb. of Potash	40 g.

Use 50 c.c. A and 50 c.c. B.

Paranol.

Water	1000 c.c.
Anhydr. Sulphite	75 g.
Caustic Lithia	5 g.
Paranol (free base)	10 g.

Hydramine.

Water	1000 c.c.
Hydramine	5 g.
Anhydr. Sulphite	15 g.
Caustic Lithia	3 g.

Edinol.

Edinol	5 g.
Anhydr. Sulphite	20 g.
Tribasic Sodium Phosphate	30 g.
Water	500 c.c.

Pyrocatechin.

A.—Water	300 c.c.
Anhydr. Sulphite	20 g.
Pyrocatechin	10 g.
B.—Water	500 c.c.
Carbonate of Potash	10 g.

Glycin.

A.—Water	1000 c.c.
Anhydr. Sulphite	15 g.
Glycin	10 g.
B.—Water	500 c.c.
Carb. of Potash	100 g.

Use 100 c.c. A and 25 c.c. B.

Adurol.

Anhydr. Sulphite	100 g.
Carb. of Potash	150 g.
Water	500 c.c.
Adurol	25 g.

Dianol.

Water	1000 c.c.
Dianol	5 g.
Anhydr. Sulphite	30 g.

Quinomet.

No. 1—Water	1000 c.c.
Sulphite of Soda	60 g.
Quinomet	9 g.
No. 2—Water	1000 c.c.
Anhydr. Sulphite	60 g.
Acetone	30 g.
Quinomet.	9 g.
No. 3—Water	1000 c.c.
Anhydr. Sulphite	60 g.
Quinomet	9 g.
Caustic Lithia	6 g.

Paraphenylene Diamine.

Water	1000 c.c.
Paraphenylene Diamine	10 g.
Anhydr. Sulphite	60 g.

Orthoamidophenol.

Water	1000 c.c.
Orthoamidophenol	10 g.
Anhydr. Sulphite	60 g.

With all these solutions we developed Lumière blue label plates of the same emulsion, and consequently all of the same size grain at the start. Exactly identical exposures were made on all, and then followed development in the previously-mentioned solutions, all at a temperature of 20°, and in all cases until the developed images had reached a comparable density.

All the plates, after complete washing, were treated on a small portion of the surface (that most opaque being chosen as containing the greatest amount of reduced silver) by a little water sufficiently hot to dissolve the gelatine. This gelatine solution, well shaken, and containing the reduced silver, was used for the preparation of material for microscopic examination. The whole of the developed plates were treated in the same manner and the microscopic images photographed, employing in all cases the same magnification.

The prints so obtained were compared together, and showed the following results:

1. The size grain of silver reduced by the different developers in general use appears the same whichever developer be employed.

2. Developers as paraphenylene diamine or orthoamidophenol used with an alkaline sulphite produce reduced silver of an extremely transparent nature and of characteristic color, of which the grain is much finer than that produced by other developers.

B.—INFLUENCE OF THE DEGREE OF DILUTION OF THE DEVELOPER AND LENGTH OF ITS ACTION.

In order to observe the influence of diluted developers we selected normal hydroquinone and carbonate of soda and also dianol. Each of these was diluted by an equal volume of water in the first test, and by ten times more water in the second. In both cases development was continued sufficiently to produce deposits of the same density.

Plates were also developed in upright baths for about an hour, using quinomet and dianol according to the following formulæ:

Quinomet.

Water	4 litres.
Quinomet	5 g.
Anhydrous Sulphite	50 g.
10 per cent. sol. Pot. Bromide	5 c.c.

Dianol.

Water	2 litres.
Dianol	3 g.
Anhydrous Soda Sulphite	9 g.

The plates were also developed in the same dish with a normal hydroquinone developer containing carbonate of soda, one of which had been taken from the developer and fixed directly the image was clearly visible, and the other had been sufficiently developed to obtain a dense image. The same trials were made, using normal dianol developer.

The negatives so obtained were thoroughly washed, then each treated with hot water as previously mentioned, for the purpose of making preparations for microscopic examination. The results of this examination were then photographed as before.

The examination of the resulting microphotographs shows that the size of grain is practically the same in all cases, excepting in the case of those slowly developed, in which the size of grain appears finer than in the others.

C.—INFLUENCE OF THE TEMPERATURE AND ALKALINITY OF THE DEVELOPER.

A series of experiments was made with two developers, dianol and hydroquinone, working with solutions kept at different temperatures—5°, 15°, 25°, and 35°—the images produced being developed to approximately the same density.

Observations were also made at the same temperature of the influence of larger or smaller quantities of alkali, by increasing or diminishing the quantity of alkaline carbonate in a series of trials, and by adding to a normal dianol developer increasing quantities of soda bisulphite in order to increase the normal time of development by rendering the solution more acid.

The negatives obtained in these different experiments were treated so as to obtain microscopic preparations for photographing. In no case was found any ap-

preciable difference in size of grain of the reduced silver.

Experiments were also made by adding to a paraphenylene diamine developer (compounded with soda sulphite) increasing quantities of alkaline carbonate. It is noticeable that this addition in increasing the speed of development tends to produce a deposit of reduced silver of similar color to that obtained with other developers. The microscopic examination of images so developed shows that the size of grain enlarges according to the increase in the quantity of alkaline carbonate until the normal strength is reached. At the same time the color of the image becomes more and more black, and finally is comparable in color with that produced by an ordinary developer.

Experiment was also made, by suppressing the alkali in certain developers, such as paranol and hydramine, and by slow development, using only soda sulphite in addition, to ascertain whether by this means results comparable to those obtained with paraphenylene diamine or orthoamidophenol could not be obtained. No more modification, however, is found than when a normal dianol developer is acidified with soda bisulphite. The color of the reduced silver shows no change.

D.—INFLUENCE OF DURATION OF EXPOSURE AND THE ACTION OF ALKALINE BROMIDES.

A series of plates, some under-exposed, some normally exposed, and some over-exposed, in different degrees, was developed. Two normal developers were employed, viz., hydroquinone with soda carbonate, and dianol.

The images were developed to a similar density, and then treated as in the former cases to obtain microscopic preparation, which were then photographed. Examination of the micro-photographs appears to show, as indicated by Abney, that in cases of over-exposure the grain of reduced silver is slightly smaller than in the case of normal exposure.

Again, plates exposed under the same conditions were developed in two developers very sensitive to the action of alkaline bromides, viz., hydroquinone (with soda carbonate) and quinomet (with soda sulphite and acetone.)* We added to these developers increasing quantities of a 10 per cent. solution of potassium bromide, varying from 2 to 15 per cent. of the developer. The images, when developed to similar densities, were treated as before to obtain microscopic preparations. Examination of the microscopic images given by these preparations appeared to show a slight enlargement of the grain of reduced silver when the developer contained considerable additions of alkaline bromide.

CONCLUSIONS.

We may draw the following conclusions from the preceding experiments:

1. The size of the grain of reduced silver deposited by normal developers, as ordinarily used, is practically invariable.

2. No apparent influence is shown on the size of the grain of reduced silver by temperature, concentration, or duration of development.

3. Excesses of alkali or alkaline bromide seem to produce a very slight enlargement of the grain.

4. Over-exposure appears to be a factor toward the reduction of the size of the grain of silver reduced by a developer.

5. Two developers not generally used—viz., paraphenylene, diamine, and orthoamidophenol, used with soda sulphite—produce a deposit like that obtained when collodion emulsions are used, and of which the grain is much finer than that produced by other developing substances.†

6. The color of the deposit seems to vary in relation to the size of the grain. The finest grain corresponds to a gray violet color, like that shown on the reduced silver of collodion emulsions.

The various developers may be classed

* Pyrogallic acid developer was not chosen owing to the difficulty of obtaining microscopic preparations from plates so developed. the gelatine of such plates being comparatively insoluble.

† We have found that paraphenylene diamine and orthoamidophenol are not the only developing substances which can produce deposits showing this special feature and made up of very fine grains of reduced silver. We have obtained similar results with most developers under certain conditions, only less perfect than those obtained by the use of paraphenylene diamine and orthoamidophenol. We are endeavoring to determine precisely and to generalize the conditions relating to the formation of these deposits having a special appearance, hoping to throw light on the theory of these phenomena.

according to the increasing size of the particles of silver reduced by them, and show four types. The first type presents many important differences to the other three, which differ but little between themselves.

First Type. Paraphenylene diamine or orthoamidophenol used with soda sulphite only.

Second Type. Paraphenylene diamine or orthoamidophenol used with soda sulphite and a small quantity of alkaline carbonate.

Third Type. Paranol used with soda sulphite only. Quinomet used with soda sulphite only, or with the addition of acetone. Paraphenylene diamine used with soda sulphite and a normal quantity of soda carbonate. Normal metol, eikonogen, or ortol developers (formulæ as above).

Fourth Type. Normal hydroquinone-metol, hydramine, paranol, hydroquinone (formulæ 1 and 2), pyrogallic acid, edinol, dianol (or with the addition of soda bisulphite), or quinomet used with caustic lithia (as in formulæ above). — *Photo News.*

ORTOL: ITS ADAPTABILITY TO PROFESSIONAL USES AND GENERAL APPLICATION.

BY A. K. BOURSAULT.

AMONG the new developers that have stood the test of time and have substantiated the claims made for them by many prominent workers, ortol has proven a particular favorite. By the great class of professional and amateur photographers, who, accustomed to the handling of pyro were eagerly awaiting the arrival of a substitute that would possess most of its desirable characteristics without its inconvenience, and that could be used by them without the wearisome necessity of studying for weeks a new system of development, ortol has been hailed with delight. As long ago as 1899 as conservative a man as W. D. Welford expressed himself as follows in the *British Journal of Photography:*

"As a user and believer for many years in that reagent (pyro) far be it from me to cast even a shadow of suspicion upon its virtues, and I confess that up to the present not one of the developers introduced since pyro has been equal to it as an all-around first class developing agent. Minor advantages have been gained; there can be no cavilling at this statement; skirmishes have been successful, but when the main battle has come off, pyro has always won.

"I make the assertion that if any developer will shake pyro to its foundations it is ortol. It is no use saying that it will take the place of the other, because there are many professionals *who will never change;* but I will guarantee that if ortol be given a three-months' earnest trial, spread over all classes of work, the dear old pyro bottle will quickly find its way to Stevens."

This extract has been given in extenso because it expresses very well the general consensus of opinion obtaining among our best scientific and professional workers, including some of the staunchest supporters of pyrogallic development, such as Prof. H. C. Bothamley, Prof. M. W. Vogel, Schnauss, Pizighelli, J. Gaedicke, Andrew Pringle, Prof. Stolze, and others.

Ortol is a chemical combination of 1 molecule 1.4 dioxybenzol with 2 molecules ortho-methylamido-phenal-sulphate. The latter salt is by itself a very fine developer, giving negatives of exquisite delicate gradation, but lacking generally in density. The possibility of combining it chemically with a substance of great covering power like 1.4 dioxybenzol (hydrochinon) or 1.2 dioxybenzol (pyrocatechin) enabled Dr. Anderson and J. Hauff to produce a developer admirably balanced in its chemical composition and adapted to the widest range of work. Like, with pyro, the image of an ortol developed negative appears step by step, and gains steadily in density. The progress of development can be easily regulated, hastened or slackened, following exactly the same principles and the same methods as

with pyro development, the only difference is that ortol has taken the place of pyro in the formula. Unlike pyro, however, it can be usefully made up as a single solution, can be used several times over, is excellent for gaslight and for bromide papers alike, the transparencies and for lantern-slides as well. It does not stain plate, paper or finger even when old, and has excellent keeping quality. The color of the negative can be regulated at will between black and brown. The rendering of tone values is perfect. The speed of development is slightly greater than that obtainable with pyro, slower than that of metol. It is readily amenable to the action of bromide of potassium or other restrainer, including the physical restrainers, such as cold, temperature of baths, colloids, sugar, etc., and in consequence it is extremely elastic and able to compensate great excesses of exposure. It is also excellent for tank development on account of its keeping and non-staining qualities. Finally, it should be mentioned that below 70° F., frilling is practically unknown with this developer, as it exercises a decided tanning action on the gelatine. Dr. Eder, who made extensive experiments on the comparative behavior of the different developing substances, speaks very highly of the advisable adaptability of ortol to general work. Sensitometric tests prove that ortol will show when properly handled a higher sensitometer number than pyro (Scheiner sensitometer), and even with a shorter development yield more density as well. For instance, two similar exposures having been given with the foregoing instrument and developed, one with pyro, the other with ortol, all conditions of temperature being equal, ortol allowed a reading of 15 Scheiner after two and a half minutes' development (photogrammetric density, 0.41) as against 14° Scheiner (density, 0.29) for pyro and of 17° Scheiner (density, 0.49) after five minutes' development as against 15° Scheiner (density, 0.35) for pyro. With ortol a few drops of bromide of potash or citrate of potash solution, 1.10, go a long way and act very powerfully as restrainers. As to the action of cold temperature on the development, it is best shown by the following table taken from Dr. Eder's *Die Grundlage der Photographie mit Gelatine Emulsion.*

Degrees Scheiner; light distance, 33⅓ m.; exposure 1 minute.	Temperature. 0° Celsius = 32° Fah. Length of exposure in minutes.				10° Celsius = 50° Fah. Length of exposure in minutes.				18° Celsius = 64.4° Fah. Length of exposure in minutes.				25° Celsius = 77° Fah. Length of exposure in minutes.			
	2½	5	7½	10	2½	5	7½	10	2½	5	7½	10	2½	5	7½	10
18																
17	...	...	...	...	...	...	...	...	...	...	...	0.70	...	0.49	0.82	...
16	...	...	...	...	..	...	...	...	...	0.41	0.54	0.72	...	0.52	0.84	...
15	...	...	...	...	...	...	...	...	0.30	0.47	0.60	0.76	0.41	0.57	0.87	1.07
14	...	...	...	0.28	...	...	...	...	0.33	0.51	0.66	0.83	0 43	0.60	0.88	1.13
13	...	...	0.29	0.29	...	...	0.32	...	1.37	0.60	0.73	0.87	0.49	0.64	0.94	1.17
12	...	0.30	0.32	0 32	0.26	0.32	0.37	0.32	0.42	0.69	0.88	0.95	0.55	0.67	1.04	1.23
11	...	0.32	0.36	0.37	0.27	0.37	0.45	0.37	0.49	0.80	0.94	1.15	0.65	0.74	1.13	1.33
10	0.33	0.37	0.39	0.43	0.33	0.45	0.55	0.43	0.60	1.00	1.15	1.37	0.73	0.85	1.28	1.40
9	0.35	0.41	0.46	0.49	0.37	0 55	0.67	0.55	0.73	1.21	1.37	1.70	0.83	0.96	1.43	1.50
8	0.37	0.47	0.52	0.61	0.45	0.65	0.79	0.69	0.85	1.46	1.63	1.90	0.90	1.15	1.66	1.82
7	0.40	0.55	0.63	0.72	0.53	0.76	0.90	0.85	0.99	1.72	1.89	2.15	1.05	1.36	1.90	2.18
6	0.43	0.60	0.77	0.84	0.61	0.85	1.09	1.00	1.15	1.95	2.56	2.45	1.25	1.55	2.15	2.50
5	0.47	0.67	0.80	1.00	0.70	0.95	1.34	1.26	1.37	2.20	3.00	2.80	1.37	1.80	2.60	3.00
4	0.52	0.76	0 88	1.13	0.77	1.12	1.55	1.54	1.55	2.60	...	...	1.54	2.03	2.97	
3	0 56	0.84	0.99	1.30	0.85	1.30	1 77	1.75	1.76	3.00	...	...	1.70	2.13		
2	0.60	0.88	1.09	1.49	0.91	1.41	1.95	1.94	1.94	...	...	...	1.87	2.65		
1	0.68	0.98	1.23	1.75	1.00	1.78	2.17	2.25	2.10	...	...	...	2.02	3.00		
A	0.65	1.07	1.29	1.89	1.08	1.75	2.44	2.53	2.25	...	...	...	2.14			
B	0.68	1.14	1.36	2.00	1.11	1.80	2.57	2.90	2.42	...	...	...	2.19			
C	0.73	1.21	1.45	2.10	1.15	1.82	3.00	3.00	2.60	...	...	...	2.22			
Fog	...	...	...	...	...	...	...	...	...	...	0.13	0.39	...	...	0.39	0.66

A short study of this table will enable anyone to understand thoroughly the great ability of ortol to cope with overexposures

and to make the best of that developer under extreme circumstances. For great underexposures, on the contrary, the best methods are either to resort to stand development or to add to the normal developer a few drops of 10 per cent. solution of caustic soda or caustic potash.

As a general developer for all-around work the following formula will be found exceedingly useful:

A.

Water	20 ounces.
Metabisulphite Potash	70 grains.
Ortol	140 grains.

B.

Water	20 ounces.
Soda Carbonate Crystals	2 ounces.
Soda Sulphite Crystals	1½ ounces.

Normal developer: 1 part A, 1 part B, and 1 part of water.

Greater softness is obtained by increasing the water or alkali or both.

Greater contrast by increasing the quantity of "A" and adding bromide of potassium (1.10 solution) as required.

For very crucial work, however, and when the greatest power of modification is required, it is best to make up the developer in three solutions after the suggestion of W. D. Walford, the sulphite being kept separate from the carbonate, thus:

A.

Ortol	1 ounce.
Metabisulphite Potash	½ ounce.
Water	60 ounces.

B.

Carbonate of Soda Crystals	8 ounces.
Water	30 ounces.

Some writers suggest as an addition to this solution ⅓ ounce of 5 per cent. solution of hypo.

C.

Sulphite of Soda Crystals	10 ounces.
Water	40 ounces.

Normal exposure: vigorous negative, 1 part A, ½ part B, ¼ part C. Bromide solution 1.10 as necessary, generally about two grains per ounce of mixed developers.

Normal exposure, softer negative, add 2 to 3 parts of water to above and reduce the amount of bromide to ½ to 1 gr. per ounce.

Overexposure: 1 part A, 1 part B, and ½ part C.

Bromide, 5 to 10 grains per ounce.

Underexposure: 1 part A, 1 part B, 3 to 4 parts of water, no bromide.

After the negative is fully developed, excepting for the finest detail, and it is feared that density may be too great, a good method is to flood the plate quickly with a weak solution of soda, say 1 part B. and 6 to 8 parts of water. After allowing it to act for a few seconds rinse the plate and immerse without delay in the fixing bath.

As previously stated, ortol is admirably adapted to the development of bromide paper, yielding with them, under proper conditions, a beautiful black deposit which comes nearer to that obtained with ferrous-oxalate than is possible with any other developer. We give here Hauff's original formula:

A.

Water	1000 grams	32 ounces.
Metabisulphite Potash	7.5 grs.	¼ ounce.
Ortol	15 grms.	½ ounce.

B.

Water	1000 grams	32 ounces.
Carbonate of Potash	60 grams	2 ounces.
Soda Sulphite Crystals	180 grams	6 ounces.
Potassium Bromide	1 to 2 grams	15 to 30 grs.

Normal developer: 1 part A, 1 part B, 4 parts water. With warm water the resulting image will be softer, with cool distinctly harder.

For gaslight papers the same developer may be used to great advantage as follows:

1 part A, 1 part B, from no water to 2 parts of water. By modifying the amount of the latter and the amount of the bromide, the color of the print can be modified to suit the taste of the operator, from pure black to brown, and even to red, by the further addition of some carbonate of ammonia and ammonia bromide, and the suppression of the soda sulphite in solution B.

Any of the formulæ previously given are admirably adapted for the production of transparencies and lantern slides, and it is unnecessary to enter into further particulars on that subject. We cannot resist, however, the temptation to reproduce the following formula of Andrew Pringles which has given in my hands the best warm-black and brown slides we have ever seen.

A.

Water	20 ounces.
Metabisulphite Potash	75 grains.
Ortol	150 grains.

B.

Water	20 ounces.
Carbonate Soda Crystals	3½ ounces.
Soda Sulphite Crystals	2½ ounces.

1 part A, 1 part B, 1 part water, and from 1½ to 2 grains of potassium bromide to the ounce of mixed developer. We strongly advise lantern-slide makers to try the foregoing, preferably on some slow plates, and they will find it all that can be desired.

We may add the same formula is very well suited for the development of plates and bromide paper.

We have referred to the use of ortol for stand development. By it negatives of admirable delicacy and gradation may be obtained even from very much under-exposed plates. Usually the speed must be so regulated that development will be completed within an hour. Occasionally this might be extended to three hours. There is no advantage however, in fact, it is rather prejudicial. The normal developer may simply be diluted from thirty to fifty times, or, if very slow development be preferred the following might be substituted for it.

Ortol	20 grains.
Metabisulphite of Potash	10 grains.
Soda Sulphite Crystals	130 grains.
Soda Carbonate	130 grains.
Potassium Bromide	3 grains.
Water, about 1 pint.	

More or less water will respectively slacken or increase the speed of the development.

All the formulæ given above have been carefully chosen from the most popular ones that have stood the test of thorough investigation and practical work. We wish, however, to caution the reader not to use them without taking in account the fact that every formula published has been adjusted to the particular plate one is using as well as to the ultimate results contemplated in the print. This is true of ortol, of pyro, or of any other developer, but for the photographer accustomed to pyrogallic acid development ortol will have but pleasant surprises, and he need not modify his ordinary methods and process to suit the new reagent. The change from one to the other will cause him no trouble or spoiled plates if he has read carefully the preceding remarks, and he will feel pleasantly gratified at the advantage of ortol.

GUM BICHROMATIC PRINTING.

[A condensed account of a demonstration given before the Royal Photographic Society. By Mr. J. C. S. Mummery.*]

The gum bichromate process is the most flexible of printing methods. One may exercise greater personal control with it than with any other method of printing, and it has the additional charm that the whole process may, one might almost say must, be carried out from beginning to end by the worker. Any color may be employed, the prints are permanent, any intensity of deposit may readily be obtained, and the values—the stumbling block of photography—may be corrected or further violated according to the knowledge of the worker. It is the process *par excellence* for those who work for the joy of the work and for those who strive to impart something of their own feeling and sentiment to their photographs.

The process rests upon the action of light upon the bichromates in contact with a colloid substance. It was originated by Mr. Pouncy, of Dorchester, and, as Pouncy's carbon process, was published in *Photographic Notes* in 1858. It was laid before this society at two meetings in 1859, the record of which, in the journal, is very amusing. Pouncy's experiments were possibly based upon the previous work of Fox Talbot, Poitevin, and others who had endeavored to produce a chromic process with gelatin as the colloid, and it is probable that the adoption by Pouncy of the

* Reprinted from the *Photographic Journal* of the Society.

less refractory gum assisted him to obtain his results.

Pouncy produced some very fair specimens which were hardly distinguishable from the silver prints of the period, but judging from the correspondence in the journals of the time, many who tried the process could get no result at all, and some went so far as to say that Pouncy produced his prints by means which he had not disclosed. The process languished, and was pushed aside by the introduction of Mr. Swan's process of carbon printing, which gave a certain and ready method of rendering the exact densities of negatives and could be used commercially. The gum process was unearthed later, and the Artigue paper, which appears to be very similar to gum, was invented in 1889; Mr. Rouillé Ladevéze and others exhibited gum prints in 1894, and since then it has come into increasing use. The introduction of multiple printing has been of much advantage to the process, giving a depth and transparency hardly otherwise obtainable.

The special materials and apparatus required are suitable paper, gum arabic, bichromate of potash, pigment, brushes, muller, and slab, palette knife and actinometer. Almost any kind of paper will be found workable. Mr. Mummery prefers a machine-made drawing paper, manufactured by the O. W. Company of Great Russell Street; it is a hard sized paper which works satisfactorily with the formula given below. Whatman's drawing paper, various cartridge-papers — Michallet, Ingres, Allongé—autotype single transfer, and many others work equally well—but for multiple printing a good hard-sized paper is desirable if the whites are to be retained. As a rule, a soft paper requires a greater proportion of gum, and with a very soft paper it may be necessary to size with gelatine.

Ordinary gum arabic in tears, not necessarily of the best quality, but free from the insoluble gums used as adulterants, should be used. The solution is prepared by placing four ounces of gum in a piece of linen, tying it up into a bag and suspending it in twelve ounces of cold water in a wide-mouthed bottle. The gum will dissolve in the course of two or three days, and will last a long time. It will become strongly acid, but this is not a matter of much moment; if neutralized with ammonia it will work more freely and give a very fine image, but in multiple printing it seems to have a tendency to reversal, and in addition is very much slower in printing. If fungi form upon the stock solution of gum, it is only necessary to filter the solution. Albumen as a substitute for the gum has been tried, but Mr. Mummery has no personal experience of this modification. The consistency of the gum is an important point, the thinness of the coating depending largely upon this. The bichromate of potash should be in saturated solution.

The pigment should be that obtained from an artist's color-man as levigated powder color, as this form can be measured better than the moist color in tubes. Lamp and ivory black, red ochre, burnt sienna, the browns and many other colors are suitable, but sepia and white do not work satisfactorily.

The brushes required are an ordinary camel or bear for coating, and a hog-hair softener. A piece of ground glass and a muller are necessary for properly mixing the gum and pigment, as well as a knife of some sort. An actinometer such as Sawyer's is useful for printing. A board whereon to coat the paper, a sheet of glass or metal to develop upon, and muslin for filtering are also required. The necessity for carefully working by measure cannot be emphasized too strongly; some gum, some bichromate and pigment to taste is an excellent formula for those who hope to fluke a result, but to work the process satisfactorily it is necessary to know what one requires and to be able to obtain the result with reasonable certainty. The following formula is a kind of standard upon which variations can be made for particular cases:

Ivory Black	40 grains.
Burnt Sienna	8 grains.
Gum (½)	1 ounce.
Bichromate of Potash (saturated solution) . . .	1 ounce.

This will give a dark warm brown, and the proportion of pigment is suitable for double or triple coating. If only one coating be required, the pigment should be increased forty-five to fifty grains of black and nine to ten grains of burnt

sienna. Mr. Mummery does not advocate a large number of coatings; he gets all he requires in two or three printings. A pigment of a light tint may be used in greater quantity to obtain proper density, and a slight increase in the proportion of gum is desirable. Pouncy, in his original formula, specified sixty grains of lampblack, but this is rather excessive, as lampblack has much greater covering power than ivory black.

Black mixed with brown gives the color most easily worked, and one with which the beginner will get the best results. With some of the other colors there is apt to be difficulty, because of the different exposures they require.

Mr. Mummery then ground the pigment and gum together with the muller and slab. A pestle and mortar are not adapted for this process, but if a spatula or palette knife be used, the operation takes two or three minutes. The fineness of the result largely depends upon the grinding, to which therefore special attention should be given. He then added the bichromate and stirred the mass, afterward filtering it through two thicknesses of muslin. For single printing one thickness only should be used.

When well mixed a coating on a saucer should appear quite smooth. The sheet of paper to be coated is laid upon a newspaper without creases, and pinned to the board. The pigment should be kept well stirred, and too much should not be taken on the brush, as the essential point of the process is a thin coating. A thick coating peels off and requires longer exposure. A hog's-hair brush a few inches wide is useful for working over the paper after the color has been laid on. This brushing, however, requires to be done very quickly or the coating will become too dry. The brush should not be allowed to drag along the paper. If the brush does not pass over smoothly the coating is probably too thick. These details, however, can only be learned by actual experience with the particular color employed. In the ordinary way, black requires longer exposure than any other color, and if the coating be at all thick the exposure will have to be prolonged.

The coated paper should lie flat for about thirty minutes to harden, and should then be desiccated on the rack over a kitchener or in a cool oven. It is advisable to lay the paper upon a sheet or two of newspaper, so that the bars of the rack do not mark the coated paper. The coated paper is laid flat to dry, because if hung up the sheets will stretch considerably.

Paper coated in this manner will remain workable for some time, even six months, if kept perfectly dry, but it is better to use it within two or three weeks. It is very sensitive to moisture and must be kept in a calcium tube. The coated paper is not sensitive to light until dry; it should be slightly glossy upon the surface; and an unexposed piece should lose the whole of its coating if soaked in water; a property of preparing the paper introduced by Mr. Packham is that in which the paper is saturated with bichromate and dried, and afterward coated with pigment and gum, with water added in place of the bichromate, but no particular advantage attaches to this method.

When multiple coating is resorted to, precaution must be taken to adjust the paper and negative so that they may be replaced for the second and following exposures in exact register. An effective printing frame for multiple printing can be contrived with a drawing-board as the base, two fillets of wood being screwed at right angles to one another along the edges of the board. The paper is laid upon the board; two strips of cardboard are placed close up to the fillets, the whole being kept in position by means of clamps. The negative is laid upon the paper, and on this a piece of thick plate glass. The process is best suited for a thin well-exposed negative with plenty of detail. Good graduations cannot be obtained from a negative suitable for carbon or platinum printing. Paper negatives may be used in the process, but the exposure of them will require to be somewhat prolonged. Paper prepared as described is quicker than P. O. P. and will be sufficiently exposed when a piece of Paget P. O. P. shows the depth required in a finished print; such an exposure will be correct for development with a spray, but for prints to be allowed to develop mechanically a much shorter exposure is sufficient.

The chief charm of the print is a certain

slight running of the image after development and during drying. Most methods of development by friction, such as brushes, cotton wool, etc., have a tendency to remove too much of the softened gum and to leave the print hard, especially if overprinted. Mr. Mummery contrives to have some resistance left in the material worked upon, and does not try to get the very last out of it; when development is carried on in this way the color will run, but only a very little. The exposure will be from two to nine points on the actinometer, according to the color and density of the negative; a piece of papier mineral at the back of the negative will increase exposure eight or nine tints. In a properly exposed print the image will be clearly visible by transmitted light; it is necessary to keep the print absolutely dry if development be deferred, or it will rapidly become insoluble and heavy, and for the same reason a print should not be left longer than necessary in the printing frame. The "continuating action of light" experienced in the carbon process occurs also in this process after the paper has been exposed, and development should be carried out as soon after the printing as possible.

A variety of methods are available for the development or washing up of the image. The print may lie face downward in the water to develop itself; the image may be washed up under a spray of water, or by laving with water, and an excellent method is with sawdust soup as used in the Artigue process; this is very useful for high-surfaced papers, or, again, a soft brush or pledget of cotton wool may be used either under or above water. The ordinary spray as used for fixed drawings is perhaps the most convenient method, as it gives either a delicate or powerful washing at will, according to the distance of the nozzle from the print and the pressure of the air. It may be used either with the bellows with which nature has provided us, which attains a pressure of nearly four pounds to the inch, or with one of Fletcher's bellows, giving a pressure of about two pounds per inch. Although the latter requires less effort to work, it is not so delicate or so much under control as the breath. If the high-lights come away from the paper in development, it is probable that too much gum has been used in the coating.

The double coating process enables one to intensify all the darker tones, or such as may be desired, and the object of multiple coating and exposure is to get finer graduations in the finished print. It is not necessary that a second or third printing should be of the same duration as the first. The first printing should be longest, the second rather less, and, if a third printing be necessary, it should be still less than the second.

In order to work upon the print with a brush it is desirable that the print should be first dried, or nearly so, although a better plan is to entirely dry the print in the dark, and wet it again, when the brush may be used with safety. For spotting, the best color to employ is pigment like that used in coating the paper. Details, such as clouds, worked in at the first coating, will not be obliterated by a second coating of color. With regard to fixing the print in the ordinary way this is not necessary. Fixing is simply the removal of the bichromate, and the print is quite permanent when once exposed to light for a time. When using color such as ivory black or burnt sienna it is not necessary to remove the bichromate of potash, but if it be desired to take out the bichromate, this can be done with a 5 per cent. solution of alum or a 5 per cent. solution of bisulphite of soda. Some colors necessitate the removal of the bichromate after development. The prints should not be laid flat to dry, or the color may run into the whites. The best way is to lay the print on a support in a slanting position, keeping the darker portions at the bottom.

Alcohol flowed over the print may hasten the drying, but gum prints when wet are so delicate that great care is necessary, or the pigment will leave the paper in a sort of wave. The prints may be varnished either with gum solution or ordinary paper varnish, but before varnishing it is necessary to size the paper with ordinary size or isinglass. Aqueous mountants, such as starch paste, may be used for gum bichromate prints, but Higgin's photographic mountant is a very convenient article for the purpose.

THE PHOTOGRAPHERS' ASSOCIATION OF NEW ENGLAND CONVENTION AND NEW ENGLAND'S CALL FOR THE NATIONAL CONVENTION FOR 1905.

BY CHARLES W. HEARN.

WE give place to the following article from one of the most earnest and conscientious workers in the profession, because we believe it reflects the desire of a large number of the craft who are anxious to avail themselves of the good to be derived from convention attendance and who are unable to spend a large amount of time and money for a number of successive years in attending conventions held at any great distance from their homes. The invitation of which it treats is a cordial one, and the reception which the National will receive if the invitation is accepted will, we know, be cordial, whole-souled, and generous. While it is not the policy of this MAGAZINE to take a hand in local politics of State or national associations, we cannot refrain from saying that the feeling of the New England men seems reasonable, and in the interest of all that is best in photography we earnestly hope their call may be heard and accepted by the National.—[ED. W. P. M.]

There were several noticeable features of the recent Convention of the Photographers' Association of New England which are of considerable interest to association men and are not without attraction to photographers generally throughout the country.

The convention had an attendance of nearly seven hundred, and was by far the largest and most successful in the history of the association. It reflects great credit upon its able officers for the efficient management.

The Professional Photographers' Society of New York was born during the convention, at a meeting in one of the committee-rooms at which about one hundred of the representative photographers and commercial men of that State were present. The members of the New England Association are very happy that this interesting event occurred under its roof, and wish for her that immediate success which seems assured at the very start in the excellent selection of officers.

The petition of the representative photographers of the maritime provinces of Canada for admittance to active membership in our association was granted, and after three years' of persistent effort they have become part of the New England Association, with a vice-president to represent them.

NEW ENGLAND WANTS THE NEXT NATIONAL CONVENTION AT BOSTON IN 1905.

There was a very marked expression among all the officers and most of the members of loyalty to the National Association and a warm desire that its next convention be held in Boston.

The New England Association had always been most loyal, and the increase of this sentiment was explained by the fact that President Tingley set the ball rolling in his opening address when he dwelt strongly on the debt that the New England owed to the National for her many favors in the past. This was subsequently the theme of very strong speeches by Secretary Bolton and Treasurer Holman. Among other things, President Tingley said:

"Should not the State associations extend their field of usefulness by sending the best of their exhibits to the annual convention of the Photographers' Association of America? To me it seems from every point of view a most laudable and worthy plan.

"This matter has been discussed at the meetings of your Executive Board with the result that they approved it most heartily, and have in an attempt to forward this plan voted: 'That we offer this year to members of the Photographers' Association of New England whose work shall be deemed entitled to such recognition, an engraved plaque of excellence, attesting the fact that their work has been selected as worthy of being shown at the Photog-

raphers' Association of America, at St. Louis, in October, and we thus urge them to allow the same to be sent there' "

This plan was carried out, and the exhibits which were accorded these plaques of excellence will be at St. Louis.

The most interesting result of this action on the part of the Executive Committee was the sentiment aroused throughout the entire attendance at the convention, including visitors from Canada, New York, Pennsylvania, and elsewhere, that the next national meeting should be held in Boston. This was ratified by an enthusiastic and unanimous vote and the selection of Treasurer S. M. Holman as a delegate from the convention to extend this invitation from the New England Association. The association also voted to postpone its convention until the following year if their call was accepted, and to unite in that case in making the next National Convention in Boston in 1905 the greatest in her history.

This invitation extended by the New England photographers seemed to dominate everything else when the members were not at the convention hall. It should dispel any feeling or thought on the part of other associations that it has been the aim of the Photographers' Association of New England to grow to colossal size and, by the additions of other States, to ultimately become a rival to the National; then, by such unions, to form the nucleus of an Eastern league, which would result in such combinations all over the country, without any especial head, tending eventually to cause the disruption of the parent branch.

The leading argument for the admission of Canada to the New England Association was the fact that "they had no association, and that New England was the nearest for them to go of all the various associations in the States."

Since the birth of the National Association its conventions have been held in the following cities:

Chicago, 1880, 1887, 1893.
New York, 1881.
Indianapolis, 1882, 1903.
Milwaukee, 1883, 1900.
Cincinnati, 1884.
Buffalo, 1885, 1891, 1902.
St. Louis, 1886, 1891, 1904.
Minneapolis, 1888.
Boston, 1889.
Washington, 1890.
Detroit, 1895, 1901.
Celeron, 1896, 1897, 1898, 1899.

By this list it will be seen that the conventions have been held largely about the great lakes or in the Middle West. The large and densely populated eastern part of the country bordering on the Atlantic Ocean has with two exceptions, that of 1881 and 1889, been absolutely neglected.

Of course, this argument as to the *geographical locations of our conventions* applies equally to the South and the extreme West. But the claims of these sections to be seriously considered and successful are largely dependent upon the progressive spirit shown in forming local associations. It is only very recently that some sections of these parts of the country have placed themselves in a position to claim a national convention.

It seems to the writer, however, that at sometime in the immediate future, *if other conditions are favorable*, they should be seriously considered, and that those places at extreme distances should, in addition to their own call, have united with them requests from all other associations in adjacent States. In sparsely settled sections of the country not easily accessible the question naturally arises where is the attendance to come from, for it is obvious that only a very few could afford the expense of a long journey and absence from business.

Now, as to New England's claim for consideration:

1. It has been fifteen years since the National met in Boston.

From the *Association Review* of 1903, which contains a very carefully prepared history of all the different conventions of the National Association we quote:

In 1889 the convention was held at Boston, Mass., and was very successful. It was largely attended and aroused great enthusiasm.

The Photographic Association of America had previously had a hard time awakening interest among photographers, and each preceding year had less in attendance than the one before it. With less

than two hundred in 1888, the membership and enthusiasm largely increased, commencing with the Boston convention in 1889. The reports in the photographic magazines gave glowing accounts of this convention and aroused great interest all over the country. From this constantly increasing interest came the birth of the State associations.

2. Since the meeting in 1889, in Boston, the New England Association came into existence, and has grown immensely notwithstanding the fact that she has discouraged and warded off all combinations which would tend to draw the membership of the National to its detriment.

That many have come to the Boston conventions from other States has been due to the fact that for the last five years the National has had her conventions in about the same territory, and the New England conventions have supplied the wants of this section of the country.

3. There is now a strong, enthusiastic, and unanimous request coming from the largest minor association in the country that our mother should come and visit us again, after an absence of fifteen years. She should do so in 1905 if the wishes of a large body devoted and loyal to her interest receive the consideration to which they are entitled.

Those photographers who have visited Boston from the West have always expressed their thanks for the cordial manner in which they were welcomed to Boston and entertained, whether it has been at our conventions or at other times.

As an example of this hospitality we will quote only one instance of visitors being met and entertained by the Boston men, who, being very friendly with each other, soon spread the news that this or that one was in town. Then a bunch of us would have our knees under the table with our guest or would be with him elsewhere till his train took him away.

The incident referred to was in 1902. Upon ascertaining that the full Executive Board of the Photographers' Association of America would be our guests after their executive session at Buffalo, the Photographers' Association of New England gave a dinner in their honor, which was attended by about three hundred of our members from all over the New England States. It was to us a very pleasant occasion, and we think was appreciated by them.

The New England photographers want the National because we are a social sort of people, and simply want to give the boys the best time in their lives.

We want all of those fresh-water chaps who have never breathed the saltness of the ocean to come here and do so. If the convention be held in August, as has previously to this year been the custom, when the rest of the country is sweltering in heat, they will feel the exhilarating effect of the salt air, tread our beautiful streets, see our boulevards, our suburbs, our shore resorts, Bunker Hill, Concord, Lexington, Faneuil Hall, and other places full of historic interest.

We want them to see Harvard University, famous the world over, and if they wish they may also go to Salem, and see where the Puritans burned the witches. We want them to see the fourth largest city on the continent, her splendid hotels, the best trolley system in the country; her famous subway, her elevated railroad, all combined under one management and acknowledged the most complete system in serving the public of any in the world. We want them to see the Mechanics' Association Building, the largest convention hall in this section of the country, a building so big that any two of the largest conventions could be accommodated at the same time at different ends and not interfere with each other, a building where there is room for the commercial men in abundance, for art display, for business meetings, various committee-rooms, all in commodious quarters.

We want all those in attendance at the National next month to consider that the time has now come to swing the convention our way, to be broad-minded, and not to stultify the growth and purposes of the National by keeping her any longer in one section or territory, which is harmful to her own interests. We do not want in turn, my brothers, to keep her here in the extreme East if she comes, but would have her move on to the other parts, and wait our turn again, until a future date, when other sections of the country have received their share.

THE BEST POSE.

THE photographer who "doesn't pose" boasts of the naturalness of his pictures. So far so good. But even on a pose a man may come to grief if he is content to let the sitter fall into an unconscious attitude, and even if the pose is secured it is not the whole battle.

It may be taken as correct that most people have a best pose; and that the best pose is a natural one. But the natural pose is not always the best for a portrait.

Pose is very much a matter of outline—fitting the figure gracefully to a space, but it takes no cognizance of mass or of tone values.

The first essential of professional portraiture is a pleasing likeness; second comes the pictorial element. The old-line photographers for years sacrificed the former in a blind submission to some conventional conception of the latter. Look at one of those books on pictorial portraiture published some forty years ago. Why, the photographer became so imbued with his notions of what was a correct pose, and so worried after turning out "sound" work, that his customers linked him, ogre-like, to the dentist. The photographer of to-day resents, and with some reason, a comparison which has outlived its truthfulness. But its conception was not due to the customers of forty years ago, but to the photographers.

The "no-pose" fiction has been useful as an antidote to the old-line pose; but when all is said it is a fiction. The fact remains that intelligence and experience—yes, and patience—are still required if we are to attain the best pose.

It is impossible not to pose elderly country-folk who are unused to facing the camera. They have the old elsewhere exploded ideas concerning portraiture, and will expect to be trussed with headrest and backrest, and otherwise to undergo a pleasing martyrdom for their money.

If the photographer would be a successful portraitist he must not work for any pose but the best pose. He has done well in discarding the old, horrible, conventional poses; but he must still pose, following, however, the unconscious suggestion of the sitter.

In only one case can the "no pose" be carried out with complete success—with children who have emerged from babyhood and have not yet reached the second era of long clothes. To attempt to pose them is usually disastrous.

He must, however—and this is the crux of the question—have his knowledge well in hand. There are scores of photographers who cannot decide which is the most suitable background until they have posed a sitter before several and judged the effect of each on the ground-glass. They commence experimenting with their light, though without the slightest idea of what should be most suitable. And, worst of all, they place an exceedingly stout customer in half a dozen different positions, in trying for the best. As Jack Brumblecombe said, fat can feel as well as lean; and such sitters are apt to be sensitive.

The no-pose theory is a specious fable. The best pose is within the reach of the photographer who has mastered the details of his studio procedure and who can unerringly do his part without experimenting while allowing the sitter to do his part.

Most photographers can master these details *via* experience and honest striving.—*The Monthly Review of the P. A. of California.*

The Arundel Club is an organization lately formed in London, officered by men of wealth and position, whose object it is to obtain and preserve photographic records of valuable portraits and paintings, so that in case the originals are destroyed some record of their salient points may be preserved. The object of this club is distinctly a good one, and similar clubs might be organized in other parts of the world to great advantage, Paintings are paticularly liable to defacement or destruction by fire, and in the nature of things cannot be kept in fire-proof vaults or otherwise protected. If, therefore, photographic records are in hand they will serve a useful purpose in case the originals are lost.

NOTES ON THREE-COLOR PHOTOGRAPHY—THEORETICAL AND PRACTICAL.

BY T. THORNE BAKER.

THERE are several ways in which the colored photograph may be produced from the three sensation negatives. The negatives represent respectively, the blue-violet, green, and red components of the picture reproduced, and a print from each has to be made in the color approximately complementary to the color of the filter through which its negative was taken. Thus from the negative taken through the blue-violet filter a yellow print is made, from that taken through the green filter a pink print is made, and from that made through the red filter a bluish-green print is prepared. These prints when superposed will represent the original subject in all its natural colors, as by means of combining these three colors in varying proportions it is possible to imitate any color of the spectrum. These composite colors are not natural in every case, but give to the eye the appearance of the natural color.

Now there are essentially two methods of preparing the composite print. It may be made in the form of a transparency by printing upon gelatine films and staining them the requisite colors, or it may be made by printing three impressions in colored inks, one on the other, by means of half-tone blocks. The first-named method is the one that appeals to the photographer, as it requires no apparatus or knowledge other than that possessed by the ordinary worker, and we shall therefore describe one or two ways in detail of making composite transparencies.

To Mr. Sanger Shepherd must be ascribed the success of putting this method on a practical footing, and he recommends for the purpose of printing sheets of celluloid coated with a silver gelatino-bromide emulsion free from chrome alum. Celluloid, mica, or extremely thin glass may be used, and a thin coating of some clear gelatine applied to it. The object of having the silver bromide incorporated with the gelatine is to enable one to see the image when printing, and when all the details are visible in the darkened bromide the film which has been sensitized with bichromate will have been sufficiently exposed for development to take place.

To coat thin mica, glass, or celluloid sheets, a 7 per cent. solution of Nelson's No. 1 gelatine should be used. Seven parts are soaked in one hundred parts of tap water for half an hour, and then dissolved by warming on a water bath. The gelatine solution thus made should be carefully stirred, then filtered through two or three thicknesses of muslin, and allowed to stand for an hour at about 120° Fahr., so that all small bubbles will be removed. It is then flowed over the glass, or the celluloid sheet laid on a piece of glass, and when the support is thus coated it is drained and allowed to dry in a warm room free from dust.

The dry film, whether of plain gelatine or gelatino-bromide of silver, is sensitized by soaking it in a solution of potassium or ammonium bichromate. The following solution will answer well:

Potassium Bichromate . .	1 part.
Water	100 parts.
Ammonia (10 per cent. solution)	2 parts.

Two minutes' immersion in summer, or three in winter, is sufficient. This may be done in gaslight, but the film should be dried in darkness. The next thing is the printing. In practice we have found it better to expose in sunlight if possible, and to give about one-quarter or one-fifth of the exposure that P.O.P. would require for the same negative. Too deep printing will give rise to excessive insolubility of the gelatine, and therefore the high-lights will not be clean. This means yellow high-lights in the yellow print, pink in the pink, etc. Perhaps one of the severest tests in printing is to examine what should be pure white, or colorless, and see whether it is colorless. The films must be placed glass, mica, or celluloid side next the film of the negative, having been first carefully cleaned.

When sufficiently printed, the films are

removed from the frames in gaslight, and placed in water at about 140° Fahr. If watched it will be seen that the whole of the outside layer of the gelatine film comes away, and that then those portions of the print unacted on by light, *i. e.*, the highlights, gradually dissolve, leaving the image as insoluble gelatine. Here comes the convenience of having a gelatino-bromide coating instead of clear gelatine, as the image stands out white and opaque, and the operation can be examined with great facility. The film should be gently raised up and down in the warm water until all but the hard gelatine image has been washed away. Where over-exposure has inadvertently been given, a wad of cotton-wool may be used as a sponge, and warm water squeezed out of it upon the picture. This will force away any nearly melted gelatine which refuses to go without pressure.

When nothing but the clean bright gelatine image remains upon its support, the film is immersed in cold water; if a Sanger Shepherd silver bromide film it must be fixed in hypo and then well washed. For these latter we invariably employ a fixing bath of 25 per cent. strength, to which has been added a small quantity of acetone sulphite. This somewhat hardens the film without rendering it less absorbent.

Before proceeding further we must touch briefly upon two points. The first is that the three films should theoretically be printed out simultaneously. Where a triple dark slide is in use and the three negatives are taken on one plate of treble length, it is of course convenient to have a film the same size, and to do this it is equally convenient to print and develop each film by itself also. Secondly, these films being transparent, they are very easily mistaken one for the other, and it is obviously essential to stain each one its correct color.

A good method is to cut one little V-shaped notch in one edge of that print to be stained yellow, two notches in the pink one, and three in the blue. Some such precaution as this is absolutely necessary. Having now obtained our three prints, one from each negative, they must be stained up in their respective colors. They may either be stained straight away, directly after washing out, or they may be dried first and then stained. Dr. Norman claims that the most brilliant effects are obtained by staining up the films in a weak dye bath, drying them when insufficiently colored, and then restaining to the necessary depth in a more concentrated dye bath. Staining up the dry films in a moderately strong bath is the most expeditious, but it must be borne in mind that every time the film is dried there is an opportunity for dust to settle on it.

The selection of dyes suitable for both theoretical and practical reasons for staining the component images must be left to another chapter.

Assuming that three washed out films have been prepared, we shall now proceed to describe the dye baths necessary for staining them.

Methyl blue is good dye to employ for the blue print, erythrosine for the pink, and auracine for the yellow. It is, of course, important that the dyes be fast to light, as if any one of them were to fade the composite colors would be at once falsified. Hübl, in *Die Driefarben-photographie*, recommends for the red picture a neutral solution of erythrosine, for the yellow an acid solution of naphthol yellow S.L.,* and for the blue an acid solution of Echtgrün blaulich† (*i. e.*, fast bluish-green).

The following stock solutions are prepared:

A.

Methyl Blue	2 grams.	or 30 grains.
Water	200 c.c.	or 7 ounces.

Filter.

B.

Erythrosine	1 gram.	or 15 grains.
Methylated Spirit	200 c.c.	or 7 ounces.

C.

Auracine G (Bayer's)	1 gram.	or 15 grains.
Boiling Water	200 c.c.	or 7 ounces.

Cool and then filter.

For the film printed from the blue sensation negative, use one part of C in ten of water. The staining should be complete within twenty minutes, and is frequently done in four or five.

For the film printed from the green sen-

* Actien gesellschaft f. chemische industrie in Basel.
† Farbenfabrik vorm. F. Bayer & Co. in Elberfeld.

sation negative, use one part of B in ten of water. The staining will take from fifteen minutes to an hour and a half.

For the film printed from the red sensation negative, use one part of A with five of water, and add to the mixture a couple of drops of fish-glue dissolved in a very small quantity of water. Staining should be complete within thirty minutes.

It is hardly necessary to observe that the more thickly coated with gelatine are the films, the quicker will staining take place.

Hübl recommends using one part per thousand of acetic acid with both the pink and the yellow baths (naphthol yellow), and with the latter 5 per cent. of a saturated solution of chrome alum as well.

The quicker the staining the flatter will be the picture, and there is no doubt that if dilute baths be used—which require some hours to perform their work—the most brilliant images will result.

When the films are placed in the dye-baths a soft camel-hair brush should be gently passed over their immersed surfaces to remove any bubbles that may adhere. The depth of color to be imparted to the films must be judged by experience, but anything black in the original subject should, of course, be black in the composite print. A deep shadow in the blue picture should appear by transmitted light of about the depth of the blue paper used by florists or green-grocers. A deep shadow in the yellow picture should by transmitted light look a dark primrose color. It is difficult to think of an every-day simile for the pink image, but its intensity should be between that of the yellow and blue pictures. Lumière recommends chrysophenine for the yellow stain and diamine blue for the blue (the latter in conjunction with a little gum arabic). Hence no fixed laws can be laid down, as the depths of color necessarily vary with the dyes used. A very little practice will show, however, what rules and suggestions cannot convey to the mind.—*Photography.*

WORKING-UP BROMIDES WITH STUMP, BRUSH, AND KNIFE.

MATERIALS required: retouching knife, sable brushes, Nos. 1 and 3, one or two stumps, cotton-wool, pumice powder, H.H. pencil, Conté "sauce,"* soft "velvet" rubber, Chinese white, and blue black.

Portraits. Print should be on rough surface paper if over whole-plate or 10 x 8 in. in size.

First rub over print with a tuft of cotton-wool smothered with pumice powder, and wipe carefully off with another piece of wool, or a soft duster.

Second (if it is a vignette), apply some of the Conté sauce spread on the first piece of cotton-wool over the part to which you wish to give the cloud-like appearance, and graduate as desired. If you happen to make it appear smuggy, clean off with pumice and try again.

Then with a stump and some "sauce" work in drapery detail, deeper shadows, etc., bearing in mind to put the work on as heavily as will be needed, for it is more difficult to increase the depth by a subsequent application. If the face and high-lights are lacking in modelling, it is best to slightly tint them all over with the "sauce," applied with cotton-wool or a stump; shadows thereon may be increased if necessary with the latter in the same manner.

You may now attempt the "cleaning up" of the picture, especially the flesh, background, etc., using either the H. pencil or a No. 1 sable brush, *very lightly* charged with blue black, or a mixture of Indian ink and Payne's gray or indigo. "Process black" (Winsor & Newton) is also capital for the purpose. The method of cleaning is precisely similar to retouching a negative.

The eyes, lips, brows, etc., can be modelled in a like manner, and sharp shadow and dark detail in the drapery and elsewhere put in with a No. 1 or No. 3 brush as necessary.

We next come to finishing the clouding

* A finely-prepared black chalk, usually sold in 3-in. rolls covered with tin-foil, or 5-in. glass tubes. It is obtainable of most artist material dealers. Black Conté crayon (the softest variety) may be used as a substitute; or the *soft* black pastel of the better-class makes will do equally well.

of the background and the strengthening of the tinted high-lights.

Soften off the vignette with pumice, and then with the "velvet" india-rubber make a few cloud breaks, taking care not to overdo it. Blow or gently mop off with wool any remaining pumice, and again using the rubber, take the tint off the highest lights in the flesh, etc., in a most delicate manner—just where the light should be most intense—and soften away with pumiced wool if necessary. If even now the highest points of light remain grayish they can be lightened by means of the knife. Lace, linen, etc., may be brought out either with the knife or with a brush and Chinese white.

Landscapes. If you wish to increase detail in heavy shadows involving much knife-work, do not apply the pumice at first.

A very sharp penknife (free from gaps) answers well. The surgeon's scalpel, ground with the left side (point downward) flat, and the right side at an angle converging to it and slightly curved, is much better. Or, when carefully set, the retoucher's knife is just the thing. With the scalpel side, broad surfaces can be judiciously lightened, and with the point, sharp detail can be made.

Hold the knife as you would a pencil, but leaning over slightly to the left, say one or two degrees off the right angle, and work the blade from right to left, and sometime backward and forward. With a little practice knife-work on prints is quite easy to do.

Having done what is necessary in this way, apply some pumice all over the print, wipe off, and stump in shadows, soften high lights, put in clouds, etc., bearing in mind to arrange their lighting as the landscape requires.

If you have a white sky, and light clouds are necessary (darks clouds would imply that the sun was behind them), first stump in the sky—not the clouds, which you will form by so doing—and then put the shadows into the latter. Remember when nearing the horizon to make the sky (usually) lighter than it is higher up.

Now put in sharp detail with brushes and black paint, use the rubber over any clouds and tints where necessary, and your picture should be finished. But you may do a *little* with Chinese white if necessary, although the knife is as a rule the better and quicker instrument to use.

In place of Conté sauce, a mixture of it with very finely powdered carbon (as used in arc lamps) may be used, and gives a bluer color.

If you have done knife-work on glossy prints, encaustic paste rubbed over the surface will restore the gloss. Or in the case of matt prints pumice removes all signs of the work on the surface.—*The Photogram.*

EDITOR'S TABLE.

OBITUARY.—We regret to announce the death of MR. JACOB JEFFERSON FALK, at the age of forty-six years, which occurred on the 29th of June last, in this city. Mr. Jacob Falk was long a familiar figure in the Falk studio, and his personality and genial presence will be greatly missed by those who knew him. His death was due to heart trouble and other complications.

We learn, just as we go to press, of the death at his home in Naperville, Ill., near Chicago, on the 8th of August, of MR. WILLIAM BOYLSTON GLINES, in the 46th year of his age. Mr. Glines was one of the old staff of Aristo boys, in which capacity he became known to a very large number of working photographers. He was genial to a degree, and leaves behind him a very large circle of warm personal friends. Some years ago Mr. Glines gave up demonstrations, and for the past three or more years has been engaged in the oil business in Chicago. He leaves a widow and one daughter to whom the heartiest sympathies of his many friends go in their bereavement.

MR. W. C. EDINGER, one of the most prominent photographers in the State of Iowa, died suddenly from appendicitis, at his home in Des Moines, on the 24th of August, at the age of forty-four years. For more than twenty years Mr. Edinger has been prominent in photographic circles, and his loss will be keenly felt among a wide circle of acquaintances and friends.

THE Lecomte prize of 50,000 francs has been awarded by the Paris Academy of Sciences to Professor Blondlot, for the most interesting work in physical science.

IN retiring from active association work to take up other duties that require his entire time, Mr. George M. Bolton deprives the Photographic Association of New England of the services of a valuable and efficient secretary. Had he continued in Association work he would doubtless have been promoted to the chair of President in recognition of his efforts during the past several years. The best wishes of his many friends will go with him into his new field of work in which his energetic effort will doubtless win him additional spurs.

ROSS, Ltd., the well-known lens manufacturers of London, Eng., are now represented in this country by an American agent, MR. SIMEON TRENNER, whose headquarters are at Philadelphia, No. 3243 N. Carlisle Street. The Ross lens needs no introduction to the American market, where its good qualities have long been known and appreciated.

NOTICE has been given by the Photographers' Association of Belgium that the twenty-sixth annual Salon will be held in Belgium during the coming summer, probably about the 20th of July. Full information concerning date, entries, and matters of interest connected therewith may be had by applying to the secretary, M. Vanderkinders, Brussels, Belgium.

AS THE National Convention meets this year at a time when copy for this MAGAZINE is usually in the printer's hands, and as we wish to publish the convention proceedings in full, as we always have done, it is possible that the November number may be slightly delayed in publication. Every effort will be made to get copy from St. Louis so that the MAGAZINE will go out on time; but rather than miss publication of the proceedings, it may be necessary to be a little late.

FIGURE COMPOSITION. No. 64 in the *Photo-Miniature* series for August is just at hand, and is a work that should be in the possession of every professional photographer in this country. This particular number is signed with the familiar name of Henry R. Poore, whose larger publications on "Composition" have won him distinction as an artist and a practical man who can teach the photographer much that he has never known. Twenty-five cents expended for a copy of this number is one of the best investments that the photographer can make. Published by Tennant & Ward, 287 Fourth Avenue, New York.

THE "Ten-in-one" matt manufactured by BURKE & JAMES, for the filing of film negatives, is a very ingenious arrangement by which the film is kept from curling, and may be easily handled without leaving finger-marks upon its surface. This enterprising firm is constantly getting out novelties in the photographic line which are well worth examination by those interested. The catalogue is full of good things, and progressive photographers should have a copy in their studios.

Another very recent production is "Etchine," a liquid for the sensitizing of textile fabrics, wood surfaces, paper, cloth, silk, etc. It may be toned in the usual way or fixed in hypo only. Circulars describing this sensitizer may be had by applying to the firm, in Chicago.

REFERENCE is made on another page of this isssue to the action of the Photographers' Association of the Northwest in recognizing the importance of publicity for the studio. This is a move in the right direction and shows a very progressive spirit on the part of the Northwest photographers. We believe that if every photographic studio realised the importance of publicity and employed some systematic method of exploiting its claims upon the community there would be less complaint of hard times and small incomes in the photographic profession. It is safe to assume that if any considerable number of the Northwestern men make a display at the next convention of the advertising matter they have used during the year it will prove an education to themselves and to their brother photographers.

THE PHOTOGRAPHIC SOCIETY of Marseilles announces its Third International Salon of Photographic Art, to be held January-February, 1905. Full particulars can be secured from the Secretary of the Society, M. EDOUARD ASTIER, 11 Rue de la Grande Armée, Marseilles.

A ROENTGEN CONGRESS is to meet in Berlin in the Easter week of 1905, the occasion being the tenth anniversary of the discovery of the Roentgen rays. The Congress will have as its chairman Professor VON BERGMANN, of the University of Berlin.

ABOUT fifty large photographs illustrating scenes along the line of the new Sanitary and Ship Canal of Chicago have been added to the exhibit of the sanitary district of Chicago in the Liberal Arts Building of the World's Fair. Topographical models show how the canal has been completed from Chicago to Joliet, and the photographs illustrate some of the problems of engineering which have been overcome.

MESSRS. GRIFFIN & CO., 2 West Ninety-second Street, New York, have placed upon the market two new printing papers under the trade name of Carbona Papera. The first is a water-tone paper giving a wide range of tone from sepia to black, the other is a print-out paper containing neither collodion, gelatine nor albumen, and yields rich tone gradations even from poor negatives. We heartily recommend a trial of these papers.

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By J. S. Lively, McMinnville, Tenn.

Awarded Grand Prize in the Open to the World Class, Southern Tri-State Association, Atlanta, Ga., July 5, 1904.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. NOVEMBER, 1904. No. 575.

THE NATIONAL CONVENTION.

St. Louis, October 3 to 8, inclusive, 1904.

(OFFICIALLY REPORTED BY C. F. REEVES.)

FIRST DAY—MORNING SESSION.

ON Tuesday, October 4, 1904 at 9.30 A.M., the Twenty-fourth Annual Convention of the Photographers' Association of America was called to order at the Forest Park University Hotel, by the President, C. R. Reeves.

When Mr. Reeves ascended the platform to call the convention to order he was loudly applauded. He picked up a glass of water from the table and said, "I will take a drink on that." Then the cheering was renewed, and somebody shouted, "That's good."

Then the President announced that it was expected that the Mayor of the city of St. Louis would be present. He said: "We expected an address from the Mayor of the city this morning, but he has been detained (a voice interrupting: "As usual") and Professor Griffith has been requested to welcome you in his stead. You all know Professor Griffith, you all love him, and I know you will be pleased to hear him.

Professor Griffith spoke as follows:

Address of Welcome.

MR. PRESIDENT, LADIES AND GENTLEMEN: I have at one time met the Mayor of the city of St. Louis, and I know that he is a good, big man. I do not think that I can in any way more than rattle around in the space which he would fill. But if he were here I know that he would take a great deal of pleasure in welcoming you, as he has other delegates and other conventions, to this city during the year of the exposition. I am well aware that he has had his hands full. I think sometimes words have failed him to carry out the welcome which he wished to extend to all the people of this vast country.

When we realize that it is not yet one hundred years since we purchased this—or just about one hundred years since the United States purchased from France all this vast territury of Louisiana, which extended then from the Great Lakes to the Gulf, I do not believe that the people realize the great growth that has developed. A Commissioner from France said to me a short time since, "This is what we gave to your people, because the paltry sum of fifteen million dollars would not be the one fraction of a cent for each person in all this vast territory which you people now command. But I am glad that you have it. While I have some glorious good friends in Canada and equally as good in England (the best friend I ever had at school was an English boy), I am glad to repeat to you the words of Napoleon when he signed the papers which made this American territory, 'I am giving to the American people something that will some time make trouble for England.'" And while he said it in a spirit of bitterness we do know that we make trouble for England only in the spirit of commerce and the spirit of doing better things than England or any other country has ever been able to accomplish. This is the pride of every American as it is of every Englishman, of every German, and you people are gathered here to-day to do the things in photography that no other nation has ever accomplished. (Applause.) About eight or nine years ago, perhaps not quite so long (I do not always keep dates in my head), I told the convention in Detroit that there was a man in France figuring on a certain kind of a watch or two magnets that were twin magnets (this was a fairy story made up out of my own brain), and that he would give you one of those twin magnets and you might go off out to Toledo, or Cincinnati or to St. Louis, and he would keep the other.

And when he wished to talk to you he would take the twin magnet out of his pocket, turn it to a certain point, and it would ring a bell in your pocket, and then you would take yours out and you would carry on a conversation at that distance. I never dreamed of wireless telegraphy, but it is accomplished, and that was the fairy story that preceded the wireless telegraphy.

Now we in the city of St. Louis assembled for the time, or for the moment, have extended to every photographer throughout this vast country one of those twin magnets, and I wish to ring that bell in his pocket and to make him feel ashamed of himself if he is not in St. Louis to-day.

On behalf of the Mayor of the city of St. Louis I extend to you the photographers of this nation, you the wide awake, bright, energetic, progressive photographers the most heartfelt welcome that I can possibly think of, one that the Mayor of St. Louis would extend you in person; one that will make you feel that you are a part of this great nation.

Reading of communications by the Secretary followed.

After the reading of the communications C. R. Reeves, President of the Association, spoke as follows:

President's Address.

I wish that I could cause you to realize the profound gratitude that I feel for your presence this morning and I hope that we will have everybody at our following meetings.

There are two occasions in my life which I have enjoyed and am destined to enjoy in this delightful city. They are separated by seventeen years, yet immediately connected in the surroundings, inasmuch as one was my first and the other is my last meeting with the members of the P. A. of A. Both proud moments in my life and each fraught with a reluctance engendered by the presence of my superiors in the profession. The first occasion was in 1886, when in company with my tutor, as grand a man as ever recorded the likeness of a happy mother's little ones or the furrowed brow of the toiling father, I set foot in St. Louis where I was to be welcomed as an apprentice in the art by the workers therein, some of whom I see here to-day.

Little did I dream on that day that I should ever receive the kindness at their hands that has since been my lot, or that the time would come when they would honor me as one of the executives to guide for a time the destinies of their beloved Association. When I look back and review the achievements of the Association, the education it has accomplished, the good and noble men who have fostered it, and compose it, and look forward to the work it has yet to do, when all these scenes pass my vision I stand in a proud reluctance before you. A reluctance because of my inability to rise to the requirements; proud because it is my good fortune to be honored as the president of The Photographer's Association of America assembled in convention in the shadows of the grandest and greatest accomplishment of man in bringing together of all the arts and sciences, and all the races of mankind from every quarter of the globe to one harmonious panorama beyond the gates of the turnstiles. You will note that I have said beneath the shadows of the great attraction, The Louisiana Purchase Exposition, and I want to tell you that many of our people said it would be the attraction and the convention would be a frost. Well, I think we have a heavy frost this morning. That you may know of the opinions and conditions prevailing, before you form your conclusions I state these things. The manufacturers, the dealers, the salesmen and even the photographers said we could not hold a successful convention. The executive committee met in St. Louis in January and viewed the different places available for holding the convention, they discussed all the points in connection, and after agreeing that they had been elected to arrange a convention which had been sent to St. Louis by a strong vote, they decided that to hold a convention down in the city and leave the members to look for quarters wherever available would be unwise, as experience on such occasions taught that the people would not attend the convention if compelled to hunt it up every day. So they began a lookout for a place where we could hold the exhibit and the meetings and lodge the members also, and selected this, The Forest Park University buildings, which are at the present time a hotel, as the most convenient and suitable. It was thought that by making it possible for the greater part of the members to live in close proximity to the convention the interest would be better kept and the convenience of the members served more to their satisfaction. These arrangements having been made, it next became a question of obtaining exhibits (of which I shall speak later) and creating interest, and showing to the members that it is possible to hold a good convention and visit the fair also. In order to do both a half-day program was arranged and the afternoons given over to visiting the fair if you wish; and I want to add right here that you can attend the morning sessions and by going to the fair of afternoons and evenings you can get all the fair your constitutions will stand. But I will refer again to securing exhibits. A vice-president was appointed in each State and instructed to get after all of the good men, whether members or not, and get out a good showing. Each member of the board accepted his certain work to do, and each man has worked hard to bring this year's convention to a successful issue. As to the measure of success you will have to form your own opinions, but I want to say this: the success henceforth until the close will depend on you. The program will be carried through and many good things there are in it if you will only be kind enough to fill the audience room on time. The officers have worked hard to make it a success. Please accept it and with your old-time enthusiasm pass it along lively, that the World's Fair Convention may be one of the good ones.

It is not my purpose to give you an oration, but I wish my talk to be plain and practical, and I will mention some points which I believe can be taken up and action taken to the improvement of our Association. I have heard the statement made that our Association needs reorganizing, but no one seems to have definite plans. Perhaps some of the analytical minds can bring forth some scheme of improvement if one is needed. However, I wish to suggest that the Association has on hand more funds than have been necessary for running expenses, and that if trustees are elected and the funds to the amount of $2000 or $3000 safely invested it will bring in additional revenue as interest and safeguard against loss by extravagance, should that danger ever threaten. Also the trustees can arrange some permanent quarters for preserving the records and property of the Association. I will state here that the Association was incorporated under the laws of Illinois, but by failing to elect trustees and make reports every year it has lost its charter by cancellation, and I have made application to

the Secretary of State of Indiana to incorporate, and I hope the convention will elect trustees that we may complete the incorporation. Referring again to the permanent quarters for the property, etc., I will say I hope to some day see this Association have its home to go to and view the record of progress when it cares to go, and in this home have its museum, its library, and its art gallery of the finest productions of its members. Also, I should like to see retained therein a small portrait of every member. We have started such a movement in Indiana and have our own building, in the most beautiful spot in the State, and as one of its promoters and trustees I bid you welcome there whenever you care to come. Will you come? You can have it as a donation from Indiana. Speaking of a home reminds me that we at one time unveiled a statue to our father, DaGuerre, in the Capitol at Washington. Recently I wrote to the custodian of the Capitol making inquiry about the statue, and received reply that none was there and nothing known of it. I wrote again saying I was most certainly present when one was unveiled and could not be mistaken, and to this received a reply that one had been located in the grounds of the Smithsonian Institute. Cannot we have a home for it and bring our father in out of the wet?

We are often dreamers and after our pleasant dreams are forced again into the material world. At one time I indulged in the dream of seeing our exhibition hall full of exquisite productions of the mind and the camera—productions of the highest merit with the author's name faintly sketched in the most out-of-the-way corner—and in the dream could see the great influence these exhibits were having as educators. After soliciting gems for exhibition at a few of our conventions I have awakened in the material world to the fact that compensation is a fixed law, and where there is a fixed compensation the returns are manifold. Hence, I would advise adopting a system of awards to every exhibitor according to the merit of his product. That is, for all who attain a certain standard, some recognition be given, and to all who attain a certain higher standard a charm, pin or badge of excellence be given, that when a man goes forth wearing same he is at once recognized as having attained an eminence in his art. This should not be a competitive award, but an award of excellence, and when he has won for four or five years let him surrender them to the Association in exchange for one of higher value. You will then bring in all the good workmen and furnish incentive for the indifferent to awaken. Two classes can be created and the exhibits hung accordingly. The State organizations are adopting something similar. Let us investigate this question and develop a plan *par excellence*.

Now, in conclusion, I wish to render acknowledgment to the many who have tendered their services, to the photographic press who have been ever ready to publish convention matter, and to the other members of the executive committee for faithful and persistent efforts to make a success of this year's convention.

I now open the convention of 1904 and ask what is your pleasure.

The President: The next thing on the program is a talk from one whom you all know by reputation, if not personally; a grand old man who has stood at the top of the line for many years; a grand old man who for seven years was president of the original Photographers' Association, which was called the old N. P. A.; a man who is eighty years old, yet is a boy.

I take great pleasure in presenting to you Mr. Abraham Bogardus, of New York City.

Mr. Bogardus spoke as follows:

Address of A. Bogardus.

Fifty Years a Photographer.

In this progressive age, when the motto is, "Look forward" and not "back," it seemed doubtful whether an audience could be interested in the events of the past; yet it is sometimes well to look at the beginning and progress of the useful.

I hope there is a doctor in the house in case anybody gets sick.

Let us go back to 1840. Your speaker well remembers reading the first statement in the newspapers of the day, saying that a Frenchman had discovered a process by which pictures of objects made by reflection through a lens could be caught, the light reflecting the object on a chemically prepared plate and the impression remaining on the plate. Little in regard to it was published, as news from the old world came slowly. No ocean telegraph then giving to-day's doings; very few steamships crossing then. We depended on the London or the Liverpool or Havre monthly packets to bring the mails. And at that date the newspapers were to a great extent filled with descriptions of the marriage of Queen Victoria. The common talk among persons who took an interest in the process mentioned was, "If this Frenchman can do what he claims, then nature can copy itself." The intelligent world was greatly excited, and eagerly sought information in regard to the claim. An English journal said: "Daguerre's ingenious discovery, which has assumed the name of Daguerreotype, continues to excite great curiosity and admiration in Europe." Such men as Lord John Russell, Sir John Herschell, Sir David Brewster and others were soon interested in it. In America many scientific and literary men began experimenting as soon as the formula was known, among others the late Oliver Wendell Holmes. In the early experiments the cigar box fitted with a spectacle lens was sometimes made to do duty as a camera. And should the experimenter after a dozen trials succeed in getting an impression distinct enough to be seen, he carried it around to show his friends his great success with the wonderful daguerreotype.

The late Prof. Morse (of telegraphic fame), being in Paris at the time, was one of the first and probably the first American invited by Daguerre to see his results. When the professor returned, his opinion was eagerly sought. Daguerre doubted its application to portraiture on account of the length of time required to produce an impression, yet Morse hoped and thought it could be done. It is in dispute as to who made the first portrait by the daguerreotype. A Mr. Walcott claims to have made the first portrait from life. Some give the credit to Dr. John W. Draper and Prof. Monroe, while Mr. Jos Dixon by letter and other evidence proved that he made a portrait of Mrs. Dixon some three months earlier than either of them. For this Mrs. Dixon sat in full sunshine fifteen minutes with powdered face. So many were experimenting with their home-made apparatus that it is almost impossible to decide this

question. About as difficult as it would be to decide who made the last. A question of more importance is, "Who makes the better photograph to-day?" or which of the nations can substantiate a claim for superiority? Europe, Asia, America, and Coney Island would each claim the verdict. When this question is to be argued there will be a "power" of talking, writing, and printing done. And all the nations of the earth will needs join in a "court" of arbitration. The photographic publications, instead of monthly and weekly issues, will all be dailies, and occasionally an "extra" will be needed to announce the death of some man who in heated debate had collapsed while trying to pronounce the names of some of the chemicals now in use. The verdict of a coroner's jury in such cases should be "exhausted by overshot ambition." The photograph is now so easily produced that the present generation have inadequate ideas of the amount of work, study, money, and experimenting required to bring it to its present simplicity. Your speaker commenced making daguerreotypes for the public October 17, 1846. At that date but few pictures were taken. That is fifty-eight years ago. There may be some men here who remember that year, but not a lady can go so far back as 1846. The first week I made one picture, the second week two, the third week none. There was Holland Dutch enough in my composition to believe there was better times in the future, and soon I was making ten, fifteen, twenty, and sometimes thirty per week. The cost of case with fittings and the plate was forty cents, and I charged a dollar and a half for a daguerreotype; so you see for a young man I was doing a paying business. Afterward I often made sixty and eighty per week. There were days when we could not get a picture. I remember the first sitter I had. I made his picture under excitement. The man was going to Australia. I would give considerable to see that first picture. The man died on one of the islands of the Pacific. It was then considered quite an event to have a daguerreotype taken. The regulation dress for a man was a black suit with white vest. Sometimes a man discarded the regulation and wore a blue coat with gilt buttons. Many first-class men wore such as a business coat, and when that was worn out he had another made, sometimes with velvet collar. There were no policemen in uniform in New York then keeping the peace and collecting. A few constables were supposed to keep order through the day, and watchmen came out at dusk and guarded the streets at night. New York must have felt much as the boy who said he always asked the Lord to take care of him through the night, but thought he was able to take care of himself in the daytime. The almost stereotyped position was with one arm on a table holding an open book, the other with the thumb in the arm-hole of the vest. The book was supposed to show the literary bent of the sitter.

There was no swing back to the early cameras, and the sitter was liable to be large-featured in the hands The moustache, now so universal, was seldom seen. A man wearing one was the subject of remark and the boys were always ready to ridicule him. The young ladies would laugh at the horrid man, and were heard to say they would not allow any man wearing a moustache to kiss them. I suppose they have changed their minds. We are often forced to submit to the inevitable. The young gentleman of that day, instead of employing his time in twirling his moustache, was making his hair roll around his ears. Perhaps some of my audience remember the high coat-collars worn by gentlemen of the old school. We occasionally had one for a sitter. The boys used to say, "No matter how high his coat-collar was, if you could only see the top of his hat above it." The operators had had but little practice with the delicate chemical vapors with which the picture was made, and often after several attempts we asked the sitter to come another day, when perhaps the chemicals would work better. To give some idea of the ignorance among the fraternity I will give some examples. A man came from Williamsburg to get some instructions. He said he could not get his pictures distinct. I coated a plate and placing the office boy in the chair proceeded to focus my camera. He asked if I focused every time. He had supposed if he focused in the morning it was good for all day. A man came from Pennsylvania for a little posting. He said he could not afford to pay much, as he only worked at the likeness business when he had no roofing to do. I might tell you of the careless operator who did not point his camera properly; as the plate came out the sitter was on the extreme edge of the plate. The operator gave him a scolding because he did not sit in the middle.

The usual time for a sitting then was from thirty seconds to one minute, and on a cloudy day I have given four minutes. The sitter must have strong nerves and perfect control of his expression to sit immovable that length of time. If one of my audience will "time" four minutes by his watch he will wonder that we ever found anyone able to endure a sitting of that length of time. And in these days of so-called instantaneous sittings we can hardly believe it ever was done. After opening the camera and while the operation was going on it was common for the operator to take a seat, holding his watch and carefully timing the sitting. Is it any wonder that many of the early daguerreotypes wore a cross expression after a torture of that kind? The idea prevailed with the public that the sitter must not wink. Yet I never knew an operator to tell the sitter not to wink. And yet it was common to have the sitter say, "I am afraid I shall wink." I was never guilty of that degree of manslaughter.

It was not long before we were producing fine pictures in sittings of twelve and fifteen seconds. I had a skylight twelve by fourteen. Then the daguerreotypes became popular, and every successful operator was kept busy during the hours of sunshine. No such thing as proofs to show then; the picture was held up for criticism after the sitting, and in a few minutes more was in a card and delivered, cash. Perhaps it is a case of first love, but I still consider the well-executed daguerreotype the best picture ever made with a camera, and I am not alone in this opinion.

At that early day the interest of the public in the wonderful "sun picture" was astonishing. A small frame at the door containing half a dozen pictures was constantly surrounded by a crowd, and it was amusing to hear the remarks of the bystanders. One would show his superior wisdom by explaining how they were made. "You look into the machine and the picture comes if you look long enough." Another thinks he knows a little more than the first speaker, and very knowingly gives his understanding of the way they were produced. "It is not the looking that does it, but the sun burns it in while you look." Another settles the whole matter by saying, "The plate is a looking-glass, and if you sit in front of it long enough, your shadow sticks on the plate." This seemed conclusive and was about as much as was generally known about the difficult, delicate, mystic daguerreotype. One sitter would

be very nervous, and another very quiet. One old gentleman, the head of a large dry-goods house, wished one dozen for his children and friends; of course he must sit twelve times. He seemed to get along very well for the first five or six, but became sleepy, and we had to wake him up at every subsequent sitting.

The dark room was a place about which people had very curious as well as amusing ideas. We were often asked what we did in there. It was thought we did some hocus pocus or sleight-of-hand work, used some unknown or mystic words over the plate to conjure up the picture. One would say, "You need not be so particular to shut the door; I do not want to steal your secret." And yet we noticed there was great anxiety to get a peep into that closet, where the supposed mystery or magic was performed, little aware that the least gleam of light would give a fogged impression or destroy it entirely. Monday was the best day for business. How the young people will laugh when I state the reason! The Sunday-night courtship was the reason. The couple would agree to exchange daguerreotypes and Monday was sure to bring them promptly. I will not tell which one generally came in first. Of course, the gentleman showed his liberality and financial ability by selecting the most costly cases and paying for both pictures. And he was a proud young man as he put her picture in his pocket. Remember pictures were not made by the dozen then and distributed by everybody. Perhaps this was the only picture of the charmer in existence and he had it. And we knew matters were progressing favorably when we placed his picture in a gold locket for somebody to wear. I have known young men mean enough to have the pictures of three or four young ladies in their pockets, and if the different ladies found it out he had to do considerable explaining. We always kept sticking-wax to keep wing-shaped ears from standing out from the head, and often placed a wad of cotton in hollow cheeks to fill them out. Ladies called them "plumpers."

Daguerreotype galleries were soon opened in many places in the city. Nearly all pictures were taken by side windows. The first skylight I ever saw was at Broadway and Chandler, on the top of the then granite building. The aspirant for immortality by the daguerreotype must climb six or seven flights of stairs—no elevators then, and if he did not get out of patience he certainly was out of breath when he reached the place of execution. There was rivalry among the different operators. One man would advertise that he had a skylight. Another one took a picture of two men boxing and hung a notice under it: "Skylarking." Another man had a notice under his pictures: "Notice particularly the eye." He thought he made a daguerreotype of the eye better than his neighbors. Another one took the picture of a fellow who had been in a fight and had a "black eye," and he put a notice under it: "Notice particularly the eye." Many methods were used to obtain patronage. One man advertised to take gratis all persons over ninety, all twins over eighty and all triplets, and twenty-five dollars reward for a quartet. One man offered fifty dollars to anybody that could take a daguerreotype in natural colors. A wag sent the picture of a large woman of the African persuasion and claimed the reward for a colored picture.

There were no societies then, Mr. President, to impart information. Every man kept the little he knew to himself, and boasters advertised themselves as having made wonderful discoveries. I am sorry to say the race is not extinct. Men whose work did not command patronage resorted to the usual plan in such cases and offered trash at low prices. A photograph can be well made or it can be slighted and poorly made as well as any other commodity. Prices below a fair valuation to me generally look suspicious, as much so as it is to see a load of cabbages at the back door of a cigar factory. Yankee ingenuity soon gave us great improvements in the apparatus and the constant experimenting of the operators simplified the use of the chemicals. They were more easily controlled, and produced more certain and satisfactory results, and in a few years the daguerreotypes produced in America beat the world. At the great World's Fair held in London in 1851 the New York daguerreotypist carried off the highest prizes, and at that day the gold medal meant a great deal more than it does to-day. Families seemed to vie with each other as to which could show the finest executed and most elaborately finished pictures. Cheap pictures were not popular then. The question was who makes the best and not who makes the cheapest. Centre tables then in every parlor held a collection, and an evening call would bring them out for your entertainment and criticism. We often knew of love affairs before the nearest relatives knew anything about them. One mother would say, "Now you must be very particular with this picture of my daughter, as a very favorable match depends upon it." Another, "Now this picture of my daughter must be your best, as it is to be sent to a gentleman in a distant city and a great deal depends upon it." And another, "Now, make me darter look nice; it's for the gentleman that's payin' attentions to her." A laughable incident was when a mother said, as her daughter passed behind the screen for a sitting, "Oh my, oh my, so young and engaged already."

Even to-day I am often asked about this producing photographs in colors. A while ago a man held up one of my old daguerreotypes. We used to take some very fine carmine and color the cheeks and a little on the lips. He says, "I saw in the papers the other day that they were taking photographs in colors. Now you used to take the colors in the daguerreotype." Oh, we never took them, but we put them on; and they still seem to think that colors can be taken through the camera. The daguerreotype was made on the surface of a polished silver plate. It will not fade; it may and often does become tarnished, and to all appearances entirely gone, but it can be restored to its original perfection if some smart person has not rubbed it out in trying to clean it. I will agree to restore them as good as they were the day they were made if they have not been tampered with. I well remember a lady bringing an old case said to contain a picture. She had heard that I could restore it. There was no visible impression; it was covered with a mist; you could not see it. In a few minutes I showed it to her as perfect as it ever was. She fainted on seeing it, as it was the picture of her husband who had been dead some years, and she had not expected to see it again. She now saw him as in life and as if by a miracle brought back. I know we had to take some water and bathe her temples and fix her up.

They say a man cannot lose what he never had. I will tell you how I lost twenty-three dollars. When we got done and had given her the picture she said, "What is the price? How much do I pay you?" I said, "Two dollars." 'Oh, my," she says, "I would have given you twenty-five."

Keep the old pictures, they are interesting; they will show you how you looked and how you dressed years ago. Many a man of sixty years of age forgets, until he sees his long-neglected

daguerreotype, what a promising youth he was at twenty-one. But, says one, "The dresses of that day look so antiquated." The next generation will laugh at the way we are dressed this morning.

The discovery of gold in California was a great boon to the daguerreotypist, as every miner embarking for the golden shore must have several taken to leave with family and friends, and whether he was going across the Isthmus or around the Horn he must be pictured with his entire kit as it was called, viz., kettle, frying pan, knife, fork, cup, pickaxe, shovel, etc., and always with two revolvers in his belt. And he must carry with him pictures of parents, wife, children, and friends to cheer him in his loneliness, and these mementoes were fastened up inside of his rough, mountain cabin. They were the last things he saw as he retired and the first to greet his eyes as he waked. That meant a great deal of business for the daguerreotypist. One man on returning said the pictures and his pocket bible had been more comforting to him than all the gold in the mountains.

A fine-looking couple came for a daguerreotpye. They wished it in the act of kissing. As I was young and inexperienced, I began to wonder whether I should know how to pose them. But they soon assumed the position they desired. (Perhaps they had been practising.) The sitting then required some thirty seconds. They both kept perfectly still and did not complain of the length of time. The expression of the face was satisfactory. The picture was made by the old, slow process. With the instantaneous plate of to-day we could execute a dozen in the time required for that one—pictures I mean. We leave it to the young people to decide which plate is preferable. A well-to-do Irishman brought his wife and said he wanted to be taken huggin' the ould woman. He was going to send it back to the old sod. She objected to any such nonsense and said she would not be taken looking like a fool. She started for the door and we had to use a great deal of persuasion to get her to come back. We finally compromised the matter by their sitting side by side with his arm around her shoulders. There are many versions of kind words. I remember hearing a case of a couple that were constantly quarrelling, a man and wife, and the minister went to see them to see if he could not settle it. And he told the old woman, "You should speak kind words to him. It would be like heaping coals of fire on his head." She did not understand it exactly. She said she had never tried that, but she had poured boiling-hot water on him. People did not think then, if you sat in front of a camera, it made any difference who worked the camera—they had their preferences. There was then as much difference as there is to-day. Anybody could make an impression, but not everybody a picture. At that day and now there was as much difference as there is between a horse chestnut and a chestnut horse. One who possessed and used the necessary qualifications got you a good picture. The other told you to sit down and keep still, and did not trouble himself about anything except to open and shut the camera, took his plate in the dark-room, developed it and told you it was just right and looked just like you. When it is shown to you you feel like committing suicide if you looked like that, and perhaps you would be justifiable in doing so. A good story is told of Mr. Lincoln, that he was in the woods gunning one day and he met a man and the man raised his gun to shoot. Mr. Lincoln says, "What are you going to shoot me for?" He says, "I was told if I ever found a homelier man than I am, to shoot him." Abe looked at him and says, "Well, if I am homelier than you are, shoot away." There were poor portrait painters then as well as poor daguerreotypists. I remember the story of a man who would paint a life-size picture for five dollars. Pat's mother had recently died and he wanted a picture of his mother. He went and asked the man if he could paint the picture of his mother. "Oh yes. Have you got a daguerreotype or anything?" "Nothing at all." "Did she wear one of those caps with a frilled edge like the old Irish ladies wear?" He said yes. "Well," the man said, "come in in three or four days and I will have the picture ready." So he painted a picture of an old lady with a cap on and set it in the other room on an easel. In a few days Pat came in to see his picture. He told him to walk into the other room and see his mother's picture. He listened and Pat was crying. He thought he would let him cry a little while. Perhaps the fake would be a little better. Then he said, "What is the matter?" Said Pat, "The ould woman has changed so I would not have knowed her if it had not been painted of her." It takes two to make a picture. The sitter makes the expression; the operator copies it. It is not well to look angry, to look as if you were angry at yourself or smile so much as to look silly. The best advice I ever heard was from a country girl to her beau. She says, "Now, Obediar, kind o' smile and kind o' don't." I would state here that Columbia School claims a complete set of the old daguerreotype apparatus, folding box, and everything kept as a memento of the daguerreotyping. The daguerreotype on the silver plate was succeeded by the androtype on glass in 1860, and then came the little carte de visite. The first one I ever saw was brought from Paris by a friend. (They did not originate in New York, as has been claimed.) It was the full-length picture of a man standing by a fluted column, the head not larger than twice the size of the head of a pin. These little cartes became very popular. The people seemed almost frantic to procure them. Every young lady had an album and all friends and relatives must furnish a picture to embellish it. The number made was enormous. I speak for one establishment. Sixty, eighty, and often one hundred dozen were made daily, and one day the books showed a register of one hundred and twenty-five dozen. We did not have to drive business; business drove us.

The photograph of to-day, when made by an operator of care, judgment, knowledge, skill, and taste, is a valuable production. The competent artist gives you the results of the study and experimenting of the best chemists of the world for a half-century. The above qualifications are necessary to properly, carefully, and naturally picture the sitter, adjust the light and shade, and successfully manipulate the sensitive chemicals.

We had many complaints of persons looking too old, but very few of looking too young. Stout people always wanted to be taken to look a little thinner, as they were a little stouter than usual just then; thin people wanted to look a little stouter, as they were thinner just then. Large people wanted to look smaller, and small men always wanted to look as large as possible. Homely men wanted to look handsome. Homely women—well, we did not have any; all were good looking. "Beautiful faces are they that wear the light of a loving spirit there; it matters little if dark or fair." A husband says he does not expect a handsome picture of his wife; he did not marry for beauty, but because she was good. The wife retaliates by saying she did marry him for his

good looks, but his beauty did not wear well. A pleasing incident and "what came of it" was the execution of a group of three young ladies—sisters. They all had beautiful faces. The picture was greatly admired. A prosperous business man from the Pacific coast was particularly pleased with the face in the middle of the group. He said he would like to form their acquaintance. I told him my position in the matter would hardly allow me to give an introduction without first consulting the ladies, and suggested that some of the firm with which he transacted business might be acquainted with them. He named some of the business houses with which he had dealings and soon named one in which a brother of the ladies was a partner. That was enough. He obtained the desired introduction. The lady whose face formed the middle of the picture was soon the wife of a prosperous merchant and presided over one of the elegant mansions in the vicinity of San Francisco. My share of the million was a piece of cake. It was good cake. I suppose it was "angel cake" to him, short cake to me.

A mother once said to me that her only boy was a very extraordinary being, and wished that to be distinctly understood; he was not to be treated as an ordinary child (his head did not look as if it was overloaded); where the extraordinary being came in soon showed itself, as he utterly refused to be taken and kicked his mother several times while in the skylight, as she attempted to enforce her feeble authority over him.

There were singular ideas as to having the baby taken. Too many relatives came along to assist. One grandmother from up town, another from across town, and several aunts and cousins. They in chorus do hope we shall succeed, as it is so much trouble for them all to get together again. Only imagine half a dozen persons in front of the child. One ringing a bell, another clapping her hands, the third shouting at the top of her voice, and the fourth blowing a tin horn loud enough to disturb the whole neighborhood, and all this intended "to keep the baby still." Had to keep still five seconds. A lady with such a retinue was very indignant because another photographer would not admit her half-dozen relatives into the skylight, after taking so much trouble to get them together. The lady thinks it is fun, and if he has any sporting blood in him he is more inclined to jump out of the chair and join in the hilarity than he is to keep quiet when all the rest are having so much fun.

An old lady had long put off the evil day, supposing it would be something dreadful, to have her picture taken. The sitting was made in a few seconds and she was told it was done. She could not believe it possible and said if that was all it was not worth coming for.

The rapid advancement and wonderful achievement since the discovery are astonishing to one who has followed them all, and participated in most of them. Instead of Daguerre's tree standing in the sun requiring an exposure of half an hour, it can catch the lightning's flash, the cannon ball as it flies. It has caught the spokes in the wheel of the rushing locomotive. The noteworthy event of to-day as seen by the camera is on the cylinder press and the morning's papers give it to the world. As the world progresses the greater will be the need of and demand for photography. Photography's work will never end. In its present advanced methods it will be a necessity as long as time and light continues. Unborn millions will apply it to purposes the present generation has not dreamed of. Science is constantly making advances the camera will be needed to picture. The explorer will return bringing the work of the camera as positive evidence of what his eyes have seen and his hands handled. The work of the camera will be history's record, and its record will not be doubted. Courts of equity will demand it as evidence. It will settle disputes and convince the jury. The little delineation by light is quiet, yet it is the proof of the existence of whatever it portrays. Be it a pebble or constellations or worlds as revealed by the telescope. An onward reach.

The universe is filled with wonders. Yet it is doubtful whether there is a greater wonder than the human face. I have made pictures of the Indian with his high cheek-bones as he stood in paint and feathers, the flat face of the almond-eyed Celestial, the Arab as he visited our shores, and, in fact, men of nearly all nationalities, and while in all the race characteristics are present, yet in all each man differs from the others as widely and with as much distinctness as the face of the man you meet on the street differs from that of the man at his side. The more we study this fact the greater our wonder. All faces so nearly uniform in size and shape, all possessed of the same general features, all so similar, and yet no two precisely alike.

What an opportunity the photographer has to study this dial of the soul!

Let the photographer's epitaph be:

His last button pressed,
Death did the rest.

The President next introduced Prof. A. H. Griffith, who spoke as follows:

Address of Professor A. H. Griffith.

Our Opportunities.

MR. PRESIDENT, LADIES AND GENTLEMEN: I am glad the president said my speech would be short. You know that I am always of that lazy character who likes to quit and quit soon. Now, after the flow of wit of Mr. Bogardus, I do not see what you can expect of me on that line. An Irishman once said to me after I had made a talk in Dublin. "You are mighty handy with your tongue." Now I think that would apply equally to Mr. Bogardus. He is mighty handy with his tongue. He forgot some things though when he told you of the trials and tribulations and troubles of the early photographers. I was a photographer once myself, not in the forties though, but some years back. He told you about powdering the face of a girl and putting her out in the sun for thirty minutes. Well, we used to have a gallery in a little country town, and those freckled-faced, honest boys and girls from the country fields would come in there on a July day to have their pictures taken. And as we knew nothing about retouching then, we built a fire in the stove and set them in front of it until their faces were like a turkey gobbler's comb. Now that was one of the tricks that he did not seem to know. Perhaps he did not have any of them in New York.

(Mr. Bogardus, interrupting: "I have done it.") (Applause.)

I am sure that this is news to some of the later photographers, however. We knew nothing about retouching. But this is an age of practicability. I am down to talk on "Our Opportunities." There never was an age of such golden opportunity for the photographer as there is to-day. Photography has by no means reached its limit. It has by no means reached anything

like the height of its power or its use to-day. There is no newspaper establishment in the country of any importance, but what has its photographic department, a department entirely devoted to it. And almost every business is adding a department of photography. And the photographer no longer makes faces or impressions, but he makes pictures that are artistic. He will take the commonest bit of material and by careful study of its possibilities will make an attractive picture. Why, in our museum work we want not only that which is practicable itself, but we want it to be in an artistic and an attractive manner. Now, as I said, this is an age of practicability. We have had our stone age, and our bronze age, and our iron age, the printing age, the age of sculpture and architecture. But this is an age which calls for the practical side of everything. You go to a man with any proposition and he wants to know what there is in it. He wants to know how much money there is in it. Now it is a great, grand good thing to work because you want to work, to do the thing because of the very love of doing it; that is, a highest achievement for all human endeavor; but at the same time we must watch the dollars and cents. Yes, in this age of practicability, of looking at the opportunities and grasping the practical side, we must keep that in view all the time. Why, the preachers of to-day no longer tell their people how to die. That is not the kind of a preacher any of you want. You want a preacher that will tell you how to live, how to take care of the present. Everybody will take care of the time when it comes to die. The preacher knows no more about it than you or I. You want someone to tell you how to work and how to get out of life all there is in it. And that is what you are in business for. If there comes an opportunity in which you can display all of your artistic ability, so much the better. And I want to tell you the camera is only the means to an end. It is only one of your tools; it will not do the work unless there is brain behind it. You can make a camera do anything that you want it to do if you understand the possibilities of it, if you understand and know how to grasp all of the opportunities that are about you. Why, pictures that were made ten years ago, and that you people looked at and admired and wondered at, are to-day nothing. You simply look at them as stepping-stones in the development of your art. To-day you are making pictures that almost speak. Opportunities are presented here by this World's Fair in the picture gallery, which is open to your eyes for study. Mr. Bogardus has told you of Daguerre and spoken of the marvellous pictures that he made at that time. The best photographer that there is in America to-day has never equalled the old daguerreotype.

(Mr. Bogardus, interrupting: "That is so.")

Mr. Griffith resuming: And I will tell you here (Mr. Bogardus did not, but possibly he knew): there was such a man as Morse, who was the first to take hold of the new invention and develop it in this country. Morse was a portrait painter, not a portrait painter that painted a full-length portrait for five dollars such as Mr. Bogardus told you about, but a portrait painter who understood how to catch the soul of his sitter, and he applied all the knowledge of his art as a painter to his new art. Now, if you go over into this picture gallery you will find portraits by Sargent, by Chase, and then go into the loan collection and look at the Rembrandts, but do not do as a woman did we had here a couple of weeks ago. She went to a guard and said: "Would you tell me who painted that Rembrandt?" And he said: "Madam, that is original." "Oh, yes, I know; but you know," she said, "that when you talk of books you like to tell who the author is, and I would like to know who the painter was." What are you going to do with people like that? You cannot do very much of anything. Now you go over there and look at the Rembrandt, knowing it is a Rembrandt, and study it and study the portraits by those old English masters who realized that white and black are never white and black except under certain conditions, under certain circumstances. Those men realized that they never could paint white, that they never could paint black, and the result of it was that they kept everything down in a low tone like the work of some of you best photographers of to-day. A few years ago you wanted all the faces white. Even the colored people wanted their faces taken white. Now you do not do that any more. But you do take them and sometimes cover the whole of the negatives with the retouching pencil and retouch the soul out of it. This is a mistake; retouch, but do not fail to keep the character distinct; that is what you want in a picture. In a photograph you must not only feel that you are taking flesh, that you are impressing the people with the material that is before the camera, but that it is real. Over there in the picture gallery is a picture I wanted to call your attention to, particularly by Sargent, of Chase; and then there is another there of three sisters, but this picture of Chase, look at that and see the character there is in it. It is painted, not taken instantaneously as you take a photograph, but is painted from life. And the man, if you could know Chase, if you could know the character of the man, you would say that it is exactly like him. He has his pallette in one hand, has gathered up the brush and drawn it back as though he was before the school and would say, "Now I will show you how to do this thing." It is full of action. You must strive to be simple, keep everything subdued, keep everything down to a certain effect until you get crispness without weakness, and the spirit that abounds in the face shows that there is a portrait. You realize that the palette and the brush in this picture is only part of the man, but that it is an essential part of the man, that it is a part of his character, the very best part, perhaps, as it is his art. Another thing that I have argued with you people and with all photographers for many years, is that you take too many pictures. *You take too many pictures.* You are crowding the business all the time. Now the best man does the least. I admire the Yankee who will sit on the fence and whittle a half-day figuring how he can swindle another man out of two dollars. I admire that man. That is laziness with a vengeance. There is a practical side of it. Sit down in your studio, sit down in your work room, sit down every opportunity you get and figure out how you can do the very best work with the least possible exertion and do it all. Simply, but do it all quietly. Do it though in such manner that people will say, "That bears the stamp and impress of Jones and I am going to him to get a picture of that character." That is the only way to make pictures. Now you do not get acquainted with your subjects. I have said that you wanted to do the work because you love to do it. Well, fall in love with every one of your subjects. Be careful about the other man's wife, but fall in love with your subjects, and then do that subject justice. When a man comes into your studio do not talk to him about the price the first thing. It matters not that he will pay five dollars or ten dollars; keep the money subject

away from that man or that woman, keep all the money subject in the background. There is someone going to talk to you about salesmen. Lord, I would like to get hold of you and talk to you about how to be a salesman, too. Never give a man or a woman a price on anything until they ask you. If they are not interested enough to ask you the cost, do not give it to them. Try and get the picture taken without ever saying a word about money. For when a man comes into the gallery, and he expects to pay you five dollars a dozen and you charge him ten, there is a look of disappointment in his face that never goes out even when you get him before the camera, and he is not satisfied with the picture because of that look of disappointment. You are swindling him out of five dollars he feels, and shows it in his face. The camera will not lie. It takes all before it, but you can lie yourself a little bit. You should not only know how to manipulate the camera and the plate, but also how to manipulate the man when he comes in. Try to find out what his fad is. If it is horse-racing you want to know everything about horse-racing that there is in it, and talk horseracing to the man until the first thing you know he is clapping you on the shoulder. Now you are on equal terms and you understand one another, and he goes at you with a horseracing face on him and he is going to win, and he will sink every dollar he has got if you win and he will do it like a soldier. Know first the kind of a man, the man will meet you on your own ground. If he is of religious character—well, be as religious as you can. (Laughter.) Try and meet him on his own ground, but get him out of this long, religious face; brighten him up now; make him feel that life is worth living, that this is not such a poor, sinful world after all; that there is a great deal of joy and pleasure and beauty in it, and get him to see something of it and then take his face, and make it just a little bit better than that of other men, and you will get his money. Make love to the woman's children. I tell you if you do not take up with the children you will never reach the mother's heart. (Cries of "Amen.") And it is the way to take pictures. Ask Core. Core will tell you it will pay you. There is not a child comes into his studio that he does not win, if the mother is with them; he makes up to the mother first, and lets her understand that it is the brightest, most charming, most beautiful boy that ever came into his studio. You need not lie about it, you can give that impression. (Laughter.) And you will please her. I think I have told you sometime of the time in the school at the museum when we wanted a model, wanted a model of a boy, and we had advertised for one, and by and by an old Irish lady came in with the most awkward, freckled-faced, homely and honest boy that you could possibly pick up anywhere. I saw right away that I was up against something; that she did not understand what we wanted; so I waited. Finally she said: "You advertised fer a young bye?" "Yes, ma'am." "And what does ye want with him?" "Well," I said, "We want him for a model in the school. You know that he has to be nude. And we put him on a platform, and the students get around and they draw him." And I went to a portfolio and pulled out several pictures and set one or two before her to show her what we did, that the boys studied the nude picture. I wish I could portray to you that woman's face. Good, kindly, motherly old soul, but this was all a new world to her. She says, "Teddy," and she nudged him. "Do you see that? If I ever catch you making a spectacle of yourself like that I will beat the devil out of ye." (Laughter.) And then she turned around to me, and with all the dignity of a queen she said, "Indade, indade, sir, he will be no dude." (Laughter.) That was a new definition of dude that I had got hold of. Now, to that mother's heart that boy was the very apple of her eye, he had the grace of Adonis; to her he was an Apollo. She thought he was all that was charming and beautiful. And she ought to. Great, grand, glorious old woman—he on whom she doted was the only one that she had. Now if you will take this into consideration that people are all made of clay. We have our ideals already formed; we see a woman and think she is glorious, beautiful, grand; we see a man that seems our true ideal of character. Well, just live long enough and get well enough acquainted and all your ideals will become clay. There is no good person but what, in a way, believes and will accept flattery. They do not intend to. Old Oliver Cromwell said: "Paint me as God made me, with every wrinkle on my face, with every mole, with every mark in order that future generations should know how I was and how I looked." But the old fellow was patted on the back until he was in fact the king and accepted the crown of England. Flattery. You will have to do these things in a diplomatic way. The salesman, the man who handles the finances of the gallery. The man who goes into his workshop —you know I do not like the word operating-room. I never use the word operating-room only to make fun of it. Operating-room. They have those in hospitals. (Laughter.) And it is a nice thing to say to a man or a woman, "Come into the operating-room." That sounds like having a leg cut off or a tooth pulled. (Laughter.) And then expect him to go before the camera and to be pleasant. Call it your workshop. In your work-shop, in your office, in your reception-room, you can use as much flattery and as much soft-soap, as the quaint saying is, as you think those people will stand, but do it in such a way that they never see it. The man who is capable of combing another man's hair the way it goes and then at the end giving it a twist his way is the shrewdest man. Never buck against a man's opinion, nor a woman's either. You will get downed every time. They may not agree with you, and they may not quarrel with you, but they go away with their own opinions still. Now you can in a diplomatic manner handle those people. Who is the best salesman in the store? The man who is diplomatic. The man who knows how to take hold of the people. Up here in Saginaw a few months ago I went by a store and saw the window so beautifully and attractively decorated that I was charmed with it. I went inside; I had no more thought of buying anything than I have of going down to St. Louis and buying one of the city blocks to-day. And yet he was so nice, so diplomatic, and took so much pains to show me anything that he swindled me out of five dollars before I got out of the store, and I lugged stuff home that I did not want simply because the fellow was so shrewd, yet I admired him. Now that is the way to get pictures and to get dollars. Make beautiful pictures; make better pictures; demand better prices; make use of your opportunities. Study everything; study everybody; study all the old daguerreotypes you can get hold of; study every painting you can get hold of. Learn to pick out that which is good, that which is the best. Learn to take hold of and to grasp your opportunities and turn it to the practical side. People will like that; they admire it. The late P. T. Barnum, the greatest showman produced by this or any other country, said there was a fool born every hour. And he was catching that fool, and he did it. He did it by advertising,

and he did it by shrewd advertising. We are attracted by the exceptional, by the unusual, by the something out of the way.

I go by a picture and I turn around and I look at it and look as far as I can see, and then I go back to it again. I meet people on the street whose faces attract me. I pick up my boys at the museum because they attract me. When I wanted a boy in the museum I suppose I had a hundred applications. Did I take one of them? No, but one day when a stranger walked in I said, "There is the boy I want. There is the fellow I want." There is a boy in the audience to-day here whom I followed around all one Sunday trying to find out who he was because he was the boy I needed. Nobody could tell me who he was, and so I let him go. And then I was sorry for it all week; but the next Sunday he came back again, and I called him into my office and he looked at me as though he had done something. I told him I thought I needed him. And he is with me to-day after four years. You are attracted by people's faces, and people's faces are everything. You trust a man because you trust his face. This morning I went up to the hotel and I said, "I am going to make a change." I owed eight dollars. The man said, "Make your change, that is all right; we can use your room." I said, "I have not time to pay you now." "Pay me when you come back," he said. That is the first time that ever I knew I had an honest face. (Laughter.) I am proud of it. You trust a man when he comes in the store because you like his face, and you are very seldom fooled either. You trust people you take to be the person you want. Now, Mr. Bogardus told you about putting wax behind the ears; and why, because ears that stick out are not sightly, but they may be a very good thing, and you can always bet on the soul. But in judging the person, you want to take other things into consideration as well. There may be one feature of a boy or man's face that is bad. Modify that. Idealize that; get rid of that. So when you paint a portrait, if you are a portrait painter, and a man or woman comes to you to have a portrait who has an exceedingly long nose, would you then make it long? No, not at all; introduce the character of it, but shorten it up; idealize it. If you would measure the face you would find that it is not according to measure. In the old days of Mr. Bogardus they had no swing back, so they took a man's feet and a man's hands all too big. You do not do that any more. You modify and tone down and idealize. And then the people will say, "That is the person; that is a speaking likeness; that is the one that has character to it. That is the one for us to go to; that pleases me." But I am to talk four or five times more. There is another man to follow after me. I do not want to take up all of his time. I want to say this: if any of you catch me over about the Art Palace —I cannot take all of you—but if you catch me over there around the Art Exhibit I will point out to you anything you want to know. You may not agree with me; that is the reason I never got a wife, because every girl wanted to agree with me. I do not want that. I would rather have a girl that will talk back and say, "I do not believe a word about it." We will fight it out right there, but do not be sulky about it. I can stand anything but a sulky person. That would drive me out of the house. But if people back up and talk back, that is what I want. If I tell you anything is so-and-so and you tell me you do not believe anything of that, that is all right. I once had charge of a gang of men and we had to go into a house and to do several rooms. This was all after I left photography. I thought there was no money in it. I guess there would not have been for me. I did not find the practical side I am always talking about. At any rate we were doing a room at this house, and a preacher boarded there. I remember hearing a conversation one morning. The woman was of German extraction and used fairly good English. It was expressive to say the least. And she and this minister were talking about something that morning and were arguing, and finally she wound up in this sort of fashion: "Well, you have your opinion and I have mine—you are a fool." (Laughter.) So you might say to me when I tell you that such and such is true, "You have your opinion and I have mine," and we will agree. It will be all right. I will try to make my side. If I do not make it clear to you, go off and just keep still and think it over. There is a man in the audience whose pictures I criticised once; he got so angry he went home and told his wife he would never go to another convention, and stormed around and made things blue for a while, but he is here to-day. I shook hands with him this morning. He thought it over a while and said, "Well I guess some of it is true." He is making pictures after that plan. I thank you.

President Reeves: Professor Griffith, I hate to do it, but I am afraid you might strike some of the boys for a five and they might be influenced by what you said about your honest face. I want to set matters right and say I stood good for you at the desk. (Laughter.)

Mr. Griffith: Well there is one man that thought I was honest anyhow.

Following Professor Griffith's address, Mr. G. Cramer was introduced, who said:

MR. PRESIDENT, OFFICERS, AND LADIES AND GENTLEMEN OF THE PHOTOGRAPHERS' CONVENTION: I am happy to see such a good crowd of you here, and I think before we get through you will agree with me, that when I prevailed upon you at the last meeting in Indianapolis to have the convention here, that I was right and made no mistake.

We are having here in St. Louis one of the greatest—the greatest—World's Fairs ever held; a collection of all that is worth seeing in science and technique, and you should feel that this is a grand opportunity to have your convention here. The argument against it was that it might detract from the convention. I did not see any reason for that if you hold your meetings in the forenoon and devote the rest of the day to seeing the great World's Fair. As I said at that time, kill two birds with one stone. I hope you will not kill either of them though, that you will kill neither the convention nor the World's Fair; and that when you go home you will have gathered great treasures of knowledge and lessons that will never die from your memory. We have here, right next to us, a great collection of wonders, all that human intelligence can produce. You can here see that it is intelligence that moves the wheels of the universe, not merely matter and power. It is only the man who has the gift of intelligence to study nature who can discover and make use of that which nature has provided for us. It only remains for us to make use of the provisions that nature or God has placed in store for us. I believe that the sights here offered to you at the great World's Fair will be of everlasting benefit, to you photographers who naturally have a sense of the beautiful. You cannot help but be impressed with the grandeur and

beauty of the architecture and the beautiful effect of the many exhibits offered from all nations of the globe.

We can now say there is nothing impossible in any branch of business. As much as nature, as much as the universe is infinite, so much has progress the same kind of infinity in every direction. In our branch, photography, see how much progress has been made! Things we considered utterly impossible formerly are done now with the greatest ease. Where we then had to make sittings twenty, thirty, fifty, or sixty seconds, we can now take them instantaneously. You will all recollect the time when we thought it was a great joke on a photographer forgetting to pull the slide from the holder. That was the first trial to photograph through wood, and was considered an utter impossibility. Now it can be done. You can photograph through boards. I do not know the limit of boards, but the *x*-ray proves what can be done in that line.

Now, ladies and gentlemen, I hope you will all have a pleasant time while here; pleasant as well as instructive, and of lasting benefit to you. As one of the veterans of the art and one of the old citizens of St. Louis—I have been living here and growing up with this town, you might say, for forty years—I thought it my duty to tender you a hearty welcome to St. Louis. I hope you will feel happy while you are here, that you will leave happy, and will be always happy, and take away with you a pleasant remembrance of this convention and of this World's Fair which will come together in one collection with the greatest stereoscopic effect possible. (Applause.) I am, I will say it once more, very glad to be with you and to be one with you. Thank you. (Applause.)

President Reeves: We will now be favored with a talk on the Science of Salesmanship, by Mr. H. M. Cole.

The Science of Salesmanship.

LADIES AND GENTLEMEN: I am very sorry that Mr. Sheldon, the founder of the Sheldon School of Scientific Salesmanship, could not be present. He has asked me to fill his place. I wish to ask how many salesmen are in the audience? I thank you.

It seems to me we have just had a sample of a typical salesman in the person of Mr. Bogardus, who, though eighty years of age, is yet young, and I sincerely hope that I may be as hopeful and witty and optimistic, when I reach my eightieth year, as he is—to be able to conquer yourself and thus prolong life is a great gift. Can we conquer ourselves is the question? I am very glad to say that five thousand students of the Sheldon school are not only conquering themselves, but are training and disciplining their mental resources so that physical, mental, and moral conquest is made possible and easy. I am very glad to represent an institution which not only can do, but is doing these things for the salesmen. We even promise to do more if one will earnestly co-operate with us, viz.:

1. We make them clearly realize the fact that "business" to-day is a science; the practice of it a profession.

2. Enable them to understand themselves better, fostering and developing, as commercial assets to themselves and to you, qualities of ambition, tact, loyalty, energy, perseverance, etc.

3. We can make them better judges of human nature.

4. We can make them better business logicians.

5. We can make them better managers of the mind of the customer—teaching them the best methods of securing attention; arousing interest; creating desire, and bringing about a resolve to buy.

6. We can give them a broader understanding of such subjects as credits, advertising, etc.; all those vital business topics which make them all around better business people.

When you stop and think of the training given the horse and the lower animals, I often am ashamed of myself, when I think of my own limited attainments and what they might be. If we proceed to analize man, we find he is made up of faculties and qualities, some of them weak, some strong, some positive, some negative.

Before I describe these qualities, I wish to make a hopeful affirmation which has encouraged many a faint heart—namely, we all have the germ of all the positive qualities. They are impartially distributed. They are the generous inheritance of the race, but their development depends upon our own exertion. This must be so; otherwise man would be a machine instead of a personality capable of unlimited advancement. All men have flashes of judgment. All men have flashes of generosity, even if the flash is like a will o' the wisp, while others have this quality so cultivated that it shines like a steadfast star.

A man may be obtuse most of the time, while the spring of intuition is hidden by the sand and gravel of bad habits, but if he digs deep enough he will find a flowing spring Let us think, then, of these qualities as so many muscles which we may harden and strengthen by exercise. The weak ones may be nourished, the strong ones strengthened; but the gates to this garden of man building must not only be closed but locked against all negative sneaks and usurpers, who, like the weeds, will use up the vital force which belongs to a healthy, legitimate growth. If we take time to exercise these qualities, we may develop them to a marked degree.

Nature does not pour out her oil from her thousand wells, but requires men to dig and experiment, and expose her hidden secrets. A few illustrations may show that boys with a seeming absence of these positive qualities have become famous by cultivating some of them.

The brilliant Richard Brinsley Sheridan was presented by a tutor to his mother with the compliment that he was an incorrigible dunce, but later on it was said of him his mind was in essence compounded with art from the finest of other men's powers. Robert Burns was a dull boy and good only at athletics.

Goldsmith speaks of himself as a plant that flowered late. Prof. Dalzelle at Edinburgh University said of Walter Scott that dunce he was and dunce he would remain.

The mother of the Duke of Wellington said her son was only good for powder.

Let us remember, then, that the material and the tools for developing these qualities are within every one of us.

The relation of these qualities may be illustrated by the geological formation of Niagara. Here is an evidence of the operation of forces that have been working since the world's day dawn. The layers of rock under the rushing stream are the Niagara limestone, Niagara shale, the Clinton and Medinah formation. But under the larger stream of a successful life we always find at least two layers of rock. First character, and then education. Such foundations will survive the effects of time's effacing finger, and their influence on the race will linger long after the roar of the mighty cataract has ceased.

Let us begin with the lower stratum, education, as this one always appeals to every normal mind. We have thought to be educated we must be imitators, copyists, and too many lose their individuality and thereby become mental slaves. But true education involves the leading or drawing out of the positive qualities which the mind already possesses, gained by the filling up and the filling from the great storehouse of knowledge.

Among the many positive qualities which self-education may develop, I will name only two: Industry and Self-reliance.

Industry can be called the touchstone to wealth. Genius is but another title for skilled labor. It is the power of making effort and is but labor in disguise. There is no secret too deep for industry to fathom, no ascent too steep for industry to explore, no problem too intricate for industry to solve. The lonely coral worker leaves his stony casket in the coral reef, and by the skilful hand of the sculptor the coral limestone becomes marble and on a lofty pedestal in some city park nature is given a voice with which to speak by the magic hand of industry.

As you can trace every sound to a vibration of air, every tick of the clock to some central spring, every brooklet to some spring in the hillside, so we may trace the achievements of man to this all dominant and commanding quality of industry.

Perseverance is an offspring of industry, and energy is its motive power. Enthusiasm and purpose give it direction, while thoroughness and concentration give it power.

Self-reliance may be called self-determination, and that means the assertion of the individual will of man. What a power this is in the building up process. Its absence indicates death. We sometimes call it ambition or the harnessing of all the mental faculties. But what a quality to develop and train!

Unaided and alone it takes the iron ore from the mountains and makes it into cast iron and steel, until it becomes a highway of commerce. It may then hold up the bridge that spans the chasm. Then by putting electricity into it it becomes a messenger of the human voice. It has been changed from valueless ore by the hand of self-reliance.

Doors are open on every side to new realms of power, and will be entered when self-reliance shall say the word.

Self-reliance always stimulates courage, and is the undercurrent of prophets and reformers. It tunnels mountains and levels hills, against the conservative opinion of the wiseacres. It enabled Cyrus Field, in defiance of the ignorance and opposition of his day, to make it possible for the president to talk with the king of England. It is twin brother to self-control, and gives a serenity and poise to every human soul, making one's own birthright to be chosen above titles and kingdoms. It has given us a Franklin, who harnessed the lightning to a kite string, and a Bunyan whose prison walls compelled him to write an allegory which has wreathed its author's head with fadeless laurels.

Self-reliance took a Newton, who once sold cabbage in a Grentham market, and made him a teacher of modern philosophy. It took a Lincoln from a boyhood of extreme poverty and hardship and made him a nation's chieftain. It took the boy Edison, at whose homespun garments Boston once laughed, and enabled him to utilize the hidden forces of nature and make them obedient to his will.

If you have followed me closely you have begun to realize that self-education must require a strong vital mentality, a quickened mind to set these dynamic powers working and keep them busy. This power you will call suggestion. It is the lever of the mind which turns on the electric current and enables the man to say: "I can be what I will be." We can then reach out to every virtue and clasp it as a precious jewel and make it a part of our being, by thinking ourselves into them constantly and resolutely until this steadfast thought realizes itself in the thing we wish. This is called autosuggestion, or the operation of self on self, which the greatest scientists have verified. It is as natural as the unfolding of blossoms on a growing plant. It is the north star in our mental sky, from which we take our latitude and longitude. The science which shows us how to start and steer the all-consuming force is suggestion.

It is the best part of Christian Science and Mental Science; it is a great asset for the salesmen to possess, and the salesmen of the country have a greater opportunity for promotion than any other class of men. The princes of the world to-day have been salesmen. Let a salesman develop his positive qualities; let him study physiognomy and phrenology that he may read his customers better. Let him study logic and psychology that he may state his proposition more clearly and know the mental law of sale, and I will show you a salesman who sells goods at a profit, and many of them. His success and the success of every man is always determined by his adherence to these basic laws and principles which I have before stated.

It is time for dinner and I cannot think of taking more of your valuable time.

President Reeves: I want to introduce to you, my friends, Mr. R. Duehrkoop, of Hamburg, Germany, a photographer who is visiting us from Germany, and who has an exhibition in the German section in the Liberal Arts building at the World's Fair. Also he has favored us with a collection of his prints, and they are gems. I want you to meet Mr. Duehrkoop and make him feel at home during his stay in America.

Mr. Duehrkoop responded as follows:

LADIES AND GENTLEMEN: By order of the Chamber of Industry, from my town, Hamburg, I come to this great World's Fair to study the progress and perfect ability of photography and I beg you to allow me to address you. I have seen with the greatest interest the astonishing and surprising works sent to this exposition by all nations of the world and I take this as a point, that all nations have something in common, something attractive, something to make brothers of us all.

I saw with the same interest the splendid, immense, and gorgeous palaces, their artistic arrangement and the beautiful flower and cascade gardens, which are making the St. Louis World's Fair one of the finest and greatest expositions.

Among the magnificent things my greatest interest was turned toward the works of Art, Photographic. I am very glad to say to you, that the exhibits are highly interesting and of great importance, notwithstanding that some of the large firms did not exhibit. America, Germany, England, France show distinct differences in the character of their works. I saw in New York, Boston, Buffalo, Chicago, and St. Louis, in the studios of the photographers, that not only

as in the exposition, most of the pictures are printed in sepia platinum, but with such a fine and artistic effect that I took the resolution to introduce this method in Germany, where it is very scarcely employed. I must declare that the American photographers are very favored by the charming models of beautiful and lovely women, who are the finest and noblest of all the good things which make America the most favored land on earth. In the studios I received many new and original suggestions from which I shall profit on my return to my country.

From foreign states, England has very beautiful photographs, an honor for this old land of culture. In France the amateur more than the professional makes very fine and artistic pictures in the neat and gracious manner that distinguishes the very esthetic Frenchman.

In my own country most of the portraits are taken in open air or in the houses of the customers, to secure the charm of home surroundings. We do not much apply retouching, and gum print is highly developed. We do not use historical or fantastic costumes, because we do not like the effects of the theatre, but only and plainly the men without posture, nothing else.

For my part I try to introduce photogravure in Germany for portraits, and I print them from copperplates from a dozen up, but, of course, at suitable prices.

I think if more of my colleagues would introduce this beautiful process, our pictures would, like the best etchings, endure century over century. This provides a new way to obtain very high prices for photographs.

The world's greatest fair will close in less than two months, but among all the immense benefits she has brought, not the least will be the bringing together of the finest works of so many nations which will encourage the artists and make more perfect the art.

I hope, ladies and gentlemen, that our intelligence, too, will increase, and that in consequence of this the work of photographers will become finer and ever more splendid, so that it may take place at the head of the liberal arts.

Adjournment.

Second Day—Wednesday.

On this day no meetings were held or lectures given, the day being devoted to the manufacturers.

Third Day—Thursday.

The convention was called to order at 9 A.M., by President Reeves.

Mr. Reeves: My friends, I want to introduce to you Mr. Henry Erle Cooper, of Southampton, England, who came to this country to attend our convention. We are happy to have him present, and we hope you will see him and extend to him a very hearty welcome to our meetings and to our country.

Mr. Cooper: It is a very great pleasure for me to be here and attend this convention. I came from England four thousand miles and I thought I should have the record. I find there is a gentleman here from Germany who has beaten me. Well, it is a great pleasure to be here. I am used to English conventions. They differ from American conventions. In England photographers go there to spend a pleasant week, to picnic. They go there to try to forget business and leave it behind them. I got rather tired of English conventions. I thought I would enjoy a week with you Americans. I had read a great deal about your conventions, and I find they come up to my expectations fully; they exceed my expectations. You are always ready for business. You are on the spot for it. You do not forget when you are here. In that way I think you can give us English pointers. As I say, it is a very great pleasure for me to be here with you and to join you in your convention.

Mr. Reeves: Now if you will kindly preserve as quiet attention as possible we will proceed to the order of business, and say we are most happy again to see so many present.

The first will be reading of communications.

Communications were read by the Secretary. (Not recorded.)

Mr. Hearn: I suggest to you, Mr. President, that you appoint a committee for the purpose of investigating the conditions under which we are insured at present time, and to have that committee bring in a recommendation as to how in their judgment it is advisable for us to insure our business to the best advantage to ourselves under present conditions, and for this same committee to see if we cannot in some way bring forth a betterment of conditions, and to report at the next convention in regard to it, and that they may be allowed reasonable expenses incurred in so doing. I make a motion to that effect.

Mr. Reeves: Will you make your motion in form so that we may record it?

Mr. Hearn: I move that you appoint a committee to investigate and to report for the benefit of the Association the conditions and the plans that we ought to follow out in our insurance, and that this same committee will try to take steps to make the conditions better than they are at the present time.

Mr. Bandtel: I second the motion.

The motion was carried.

Mr. Reeves: How shall this committee be appointed?

Cries of "By the chair."

The chair appointed Mr. Simon L. Stein, George Van Norman, "men who have had experience in this line and are

perhaps better able to take it up than any one else."

The Secretary read his report.

Secretary's Report.

Received on 1902 account	$ 128 31
" from sale of floor space	1715 00
" " " " desks	300 00
" " advertising and entertainment fund	1411 30
" " sales account	6 00
Total receipts for 1903	$3560 61
Paid to Treasurer	$3560 61

Treasurer's Report.

Cash on hand Jan. 1, 1903	$5175 89
Received from membership and dues	2659 00
Received from Secretary	3560 61
Refund from Traffic Association	17 00
Total receipts for 1903	$11412 50
Disbursements as per voucher	5341 76
Leaving balance on hand Jan. 1, 1904	$6070 74

Mr. Bandtel moved that the reports both be accepted and placed on file. Seconded by Mr. Hearn. Motion carried.

Reading of communications by the Secretary. (Not recorded.)

Mr. Reeves: Under this head I will say that I received a telegram from George Schumacher, of Los Angeles, Cal. He is tied up by a washout. We are unfortunate, our Shores are washed away, and our Schumachers are lost in the flood.

There was a committee appointed at last year's meeting to make a report at this meeting. Is Mr. Holden present? Mr. Holden is chairman of this committee.

Mr. Holman: Were you referring to the committee on resolutions?

Mr. Reeves: No sir. It was a committee appointed last year that had in charge a matter that they were to report upon at this meeting. The resolutions committee will not report until later in the week.

Mr. Holman: I am afraid we will not be ready to-day.

Mr. Reeves: No, that committee will report at the last session. Mr. Holden, are you ready to make your committee report?

Mr. Holden: Yes sir, in a minute or two.

Mr. Reeves: Let me make one or two announcements while we are waiting on Mr. Holden. This evening from 8.30 to 11.30 we are invited to a reception by Mr. Strauss, in the city, at Franklin Avenue near Grand Avenue. The question has been asked, Are the ladies invited also? And they say, "Why surely."

We have an invitation to visit free of charge the Tyrolean Alps, at the east end of the Pike in the fair grounds this afternoon. Your photographer's button will admit you at the gates of the Alps, and at 5 o'clock they wish to make a flashlight photograph of the audience in their banquet hall.

The Mercury Hewitt demonstration will be at your service at any time during the week. If you are interested, the gentlemen will be pleased to meet you and demonstrate to you at any and all times.

This evening there is a demonstration by the American Aristo Company.

If there are other announcements you would like made at the present time, will you kindly mention them?

Mr. Lewis came forward and asked to meet all of the Canadian photographers present.

Mr. Bellsmith: I think it is only right and proper that we should take notice of the demise of our brethren. Especially of those who have been of great power and usefulness in our Association. Therefore, I move you that a committee be appointed to take suitable action upon the death of our ex-president, Mr. James F. Ryder, of Cleveland, Ohio, and also in that I might include Mr. Inglis, James Inglis, a man who has been a great power and a great help to the profession and to the Association. Therefore, I move you that a committee be appointed to draw up suitable resolutions upon their deaths.

Mr. Bandtel seconded the motion.

Mr. Reeves: Let us take it by consent. We loved those old men and we want to show it. I will appoint Mr. R. C. Bellsmith, Mr. F. D. Todd, and Mr. S. L. Stein.

Mr. Steadman will give a demonstration by an ordinary window this afternoon.

Mr. Holden, we will hear your committee report.

Mr. Holden: Mr. President, referring to a meeting at Indianapolis last year, there was a matter came up about this

Winona Institute, situated at the assembly grounds of the Winona Assembly, and after considerable talk there was a motion made that one thousand dollars be appropriated as a nucleus or a fund for the purpose of furthering the objects of this movement. The motion was amended by Mr. Potter to read that the amount of five hundred dollars remain in abeyance until the next convention; that the president appoint a committe to visit Winona, and if their report was favorable that the appropriation should stand. If not, the matter to remain open for further consideration. Now the committee beg to report that, realizing the necessity of some permanent place for the custody of the books, pictures and other property of the National Association, and the advisability of having a national salon of permanent exhibition; therefore we desire to report in favor of subscribing the sum of $500.00 to the Winona Association, with the proviso that this Association shall have the right to the absolute control of the disposal of the pictures of the salon and other property belonging to this Association.

[Signed by the committee.]

Now, Mr. President, ladies and gentlemen: It was my pleasure a few weeks ago to visit Winona Assembly. And there I found that this matter of a Daguerre Memorial Institute had gone farther than I had anticipated. I found that the Indiana photographers had worked well and worked hard and worked very successfully. They had been met by the Winona Assembly in a very full manner. The Winona Assembly had gone farther than the Indiana Association ever anticipated at that time. The result is that out of appropriations and money appropriated and donated by gentlemen through the land and not interested in photography, but for the purpose of furthering the objects and the ideas of photographic advancement and greater care of matters belonging to them, helped along generously till they provided at this time a building which cost between six and seven thousand dollars. Incomplete as it is, this is a picture of the place as I found it (showing photograph). This is only the beginning of what is expected in the future. This building at the very end contains already a skylight, dark rooms, print windows, and a lecture hall. From this door back, this part of the building, is for exhibition purposes or the home of the salon of pictures, placed there by the Indiana Association and by the National Association, selected from all over the country, which shall remain there as a permanent exhibit, the salon of all the photographers of the United States.

Mr. Holman: Mr. President, may I be allowed the floor to expedite the business of this convention, as moments are valuable. In your address, which is referred to your committee on resolutions, this very matter is brought up and will be reported to-morrow, and would it not save time to wait until the report to-morrow, and give us this time for something else?

The President: Mr. Holman, this committee was appointed to report at this meeting. We will have to accept some form of report from it.

Mr. Bellsmith: I move that this report be referred to the committee on resolutions to report to-morrow.

Mr. Hearn: I second the motion.

The motion was carried, and the report of the committee referred to the committee on resolutions to report later.

The President: We have a full attendance this morning. If it is the will of the audience we will pass upon the location of the next place of meeting.

Mr. Holman moved that the place of meeting for next year be selected at this time.

Mr. Potter seconded the motion, and the motion carried.

The President: Nominations are now in order.

Mr. Bellsmith: Mr. President, to start the ball rolling, I will say that I have here in my hand a letter from the president of the Chamber of Commerce of Cincinnati. They desire to invite this Association to meet in convention next year in their city. Therefore, I place in nomination; by their earnest request, Cincinnati.

Mr. Holman: Mr. President, I have the honor to be a delegate sent by a section of your country, my country, and of our country, called the New England States. I was sent here for the purpose of inviting this splendid body to meet, not only in the heart of New England and of Massachusetts,

but in the "Hub of the Universe." Your president asked me this morning, when I said I thought this question would arise to-morrow, if I had my lieutenants ready for a very quick session of it this morning, and I said, "I think I have." It did not need any preparation. As near as I could estimate there were about a thousand of my lieutenants ready for the proposition this morning. There are two or three things I want to say to you why we suggest that the National Association come to Boston next year. It has been fifteen years since Boston has had the honor of your presence, and I think there are about forty-five States in the union. If you want to preserve the national character of this organization you must of your own volition make that character national. Localizing this organization will be suicide. We have but one government and one flag. To make that true, every State must feel that they are looked after and are a part and portion in supporting the union of our one government. Localize this organization for any length of time in the centre of our United States, and the edges that border the Atlantic and the Pacific will become so neutral that they will not feel that they are a part any longer of your organization, and will cease to attend and contribute of their money and of their pictures, because they will not feel that they are treated right. So we feel that once in fifteen years is not asking too much of this body to come to where we can treat them and prove to them our loyalty. I have felt sometimes (although my looks are against it, I am a very peaceable fellow), I have felt sometimes almost put into a fighting mood when I have heard some people, who knew not whereof they talked, state that New England was not loyal to this body. It shows a deplorable ignorance of the true sentiment which exists in that section of our country. I want to say to you that with our contributions of money, with our contributions of the best art that we can produce, no section in our whole country has continuously proved its loyalty to the National Association more than the New England States. Ask your hanging committee who sends you the most of the pictures on your walls up here. New England. I want to say that the strongest sentiments of love and patriotism and of loyalty to this organization not only exist to-day, but every day in the past for the organization by the members, the old New England boys and girls. Somebody said to me, "Can you hold us if we come to Boston?" Have you been there? We have one of the finest convention halls in the country, particularly adapted to just such work as ours, and we will guarantee that if you multiply this organization by twenty, in other words give us twenty national organizations of this size, we will put you beneath one roof in Boston, and have to furnish you guides to find each other. Talk about your convention cities, oh dear. Ask the old boys in blue who were there last fall from all over this United States whether we are a convention city or not, and leave it to them whether we have good accommodations to hold and entertain you. My friend read a communication from the Chamber of Commerce at Cincinnati. I had almost forgotten, but I have one or two of those myself.

When you come back to Boston, boys and girls, you are coming back to your own, wherever you live; to the old commonwealth with its Plymouth Rock and its Bunker Hill; it is your heritage, and I know that these faces will be glad to get back to the land of their ancestry. So, to make it short, I want to impress upon you with all the emphasis of my nature that New England extends to you an invitation to come to us in 1905.

Mr. Giffin moved that the nominations be closed. Mr. Rosevear seconded the motion. The motion was carried.

J. M. Bandtel, Neal Walden, and Mr. Wingum were appointed tellers.

The ballots were collected and counted by the tellers.

The President: It is rather tiresome waiting while they count the ballots. We have a man here who will take all that tired feeling away from you. I have the pleasure of introducing to you Mr. Collings.

Mr. President and Brother Photographers. You must excuse my voice this morning, as I have a very hard cold. Coming out here a lady left a window open on the train ahead and I caught the draught.

I do not know what I am here for. But while

(Report continued on page 505.)

By A. N. Camp, Jamestown, N. Y.

By F. M. Somers, Cincinnati, Ohio.

By F. M. Somers, Cincinnati, Ohio.

By Dan. L. Johnson, Oshkosh, Wis.

By F. M. Somers, Cincinnati, Ohio.

By Dan. L. Johnson, Oshkosh, Wis.

By Dan. L. Johnson, Oshkosh, Wis.

By Dan. L. Johnson, Oshkosh, Wis.

I am here I want to throw a bouquet at the executive board this year. I have attended many national conventions, many local conventions, was an officer in the New England convention, but under the difficulties that these boys have had to encounter, the hard work to secure quarters to secure accommodations themselves, we can thank them from the bottom of our hearts for the work they have put forth and the rooms they have put us in and the food they have given us to eat. It is not an easy job to put away a thousand people after the rooms are already filled, but you people are bunking in somewhere. I do not know where, how or who, but you are getting along all right. Now you are going to New England. I am from New England. Eight hundred loyal people from New England have invited you out there, and I assure you we will extend to you a hearty welcome, and you will not regret the move you have made. It is an essential thing that you do go to New England. The New England Photographic Association is to-day numbering as many as there are here. We have sympathy for the National Association. The New England Association feels as if it would like to drop down and die one year for the benefit of the National, sacrifice its life and come to life again after we get rid of you. I am very much obliged. (Cries of "go on, go on.")

Now we will talk a little on photography, on another line. I am one of those photographers who, a few years ago, made use of the expression that I make pictures to get money to buy bread to eat to give me strength to make more pictures to get more money to buy more bread to eat to give me strength to make more pictures.

I see on the walls of the convention convention pictures. I am talking now to the class of people that have visited conventions every year. You are some of you rather confused as to what to do. Your heads are in a whirl; you are bewildered. You wonder, if you go home and put before your customers a certain class of work, whether the people will accept that work or not. It is a question in your minds whether you can all do the work or not. I am of the opinion that chemical manipulation taken with a little brains goes a good way toward making pictures that are satisfactory to your customers. Never lose sight of the fact that chemicals are essential to making photographs.

From the artistic standpoint the space, the lines and the curves come in play all right, but if you are giving the right likeness and the right position and the curves and lines and spacing are pleasing to your customers, do not lose sight of the fact that you want certain amount of chemical effect in your pictures. And for God's sake do not go home taking all the ideas you saw out in the convention hall, trying to work them all in conjunction with your own work. But you can pick out a few ideas and take them home and work them in connection with your own work and you will come out a winner. But if you go home to right-about-face and get on another school of photography, I can see a mortgage on your place and your rent three months in arrears before you succeed.

Address of Morris Burk Parkinson.

MR. PRESIDENT, LADIES AND GENTLEMEN: I do not intend to make a long speech, though I did intend to say a word in reference to Boston, and in it there is one practical point, one that has been covered once, that we come holding in one hand the invitation and in the other a picture of the grandest hall in the country for a convention. The other practical point is right here. In New England, as has been said, there are about eight hundred members, second only to the National, an association to which we are all loyal. Now, with eight hundred members probably of them only a few are members of the National to-day. I do not know how many, but only a few. Next year we omit our New England if you decide to go there, and the better body of the New England Association will become new members of the National, which seems to me, as a mere money proposition, makes it very wise to go there.

But what I arose to say was, that possibly all of you do not know Mr. Collings, who has just spoken to you. You often have lectures on advertising and the way to do business. I have heard a little about Mr. Collings and I know one or two of his methods. His business card, when he was a photographer—he is out of the profession now—his business card read: "Mr. Jack Collings, Mrs. Jack Collings' husband, photographer." Now many of you, and I hope all of you, have met Mrs. Collings here during this convention, and I do not think it takes you long to reflect that that was a very wise card.

Another thing I heard of Mr. Collings refers to his wisdom when he was in Holyoke, Massachusetts, and this is the last and only one. On a hot summer day he went away, and in his show window or front window he left this placard: "I am going out of town. It is too hot to-day to take good pictures, and I will be damned if I take poor ones."

The tellers to count the vote on location reported as follows: Minneapolis, 3; Cincinnati, 87, and Boston, 185.

Mr. Bellsmith made a motion to make the vote unanimous for Boston in 1905, and the motion was carried.

Mr. Holman: Mr. President, I want to announce that we will plant a large crop of beans early in the spring.

President Reeves: We will now have a lecture on "Art in Photography." By Frank A. Bement.

MR. PRESIDENT, LADIES AND GENTLEMEN. I am going to present to you if possible the art side of the question. With all deference to Mr. Collings there is something besides chemicals used in the making of a picture. However, I do not go so far as to say you should not use the chemicals. I am going to make that just as plain as possible so that the men who are interested to follow the steps through the processes of arrangement and the deductions that follow may get them without any particular difficulty.

Now there are many things that can be done to make a picture artistic. You all know that. It is rather difficult to tell what the artistic is. I think the only way to arrive at it is by a process of elimination. If you take out the things that are not artistic, then you get the things which are or the one which is left. You can eliminate the scientific aspect, the commercial aspect, the political aspect, the social aspect, and the pictorial aspect. The pictorial aspect is most nearly related to the artistic aspect. Then you will have left the artistic aspect. I think there is a great deal of charlatanism, a great deal of matter written which amounts to nothing Art is some-

thing you cannot define. I cannot define it. It is not in the heart; it is not in the intelligence. Nobody can tell you what it is. But there are steps which will lead to artistic production. Now I am going to put on the board a list of the things which I think are important in making things artistic. The painter may be artistic, first, perhaps, in the choice of his subject; second, in his arrangement; third, in his color; fourth, in his tone; and fifth, in his handling or technique—we will say handling. The painter may have for his field, perhaps, in which he may be artistic, any one of them. As you know, the photographer, in most cases, has his subject chosen for him. She comes in, or he comes in. You can cross that out. He has not any choice. Many times I think he has in his arrangement. So we will not cross that out. He has no color to deal with yet. Thank goodness, you may have color. Tone is a thing which you may sometimes dicker with. There are a variety of tones which you may use. So we will not cross that out. Handling, I think you may cross the handling out. Handling of the photograph depends so much upon the kind of paper you use that there is not much left to the photographer in his handling. So we will see that the photographer has left a few tones which he may use. And that leaves him arrangement.

If a photographer is going to be very artistic he will demonstrate that fact in his arrangement. As I said, you may have tones, several varieties of tones, which you can use in photography. Now, if I understand, arrangement is the principal thing for the photographer to pay attention to.

Now you can divide arrangement into two heads, the posing of the figure and then the arrangement of the details. Now the posing is rather separate from this second, as you will see, if you will go back through photography a little You first had the daguerreotype, which was undoubtedly a very beautiful production. I am astonished that there are not more people following on the lines of the men who made daguerreotypes. In that line I am continually astonished at the things those men made. Then followed a period of neglect. The first period covers the time when the lens was poor, when the photographer was forced to all the light possible. You know what I mean—that kind of a photograph where the head is always in the centre of the photograph, where the background is always worked in behind so as to give the greatest possible relief, the greatest possible rotundity to the head. Then followed a period, I will say, of twenty years; for twenty years the photographers made portraits which were little less than glass images, but a little more. They were particularly bad. I think you know what I mean. There was no pose in those pictures. There was a head-rest that every man put his head in, and every woman. Sarony, of New York, who studied art, or studied drawing during the evening in the night schools, began to see there was something more needed in this thing And he used to go up to his studio and work for hours at a time on one model to get a good pose. And finally he succeeded in getting a good pose. And I think a great deal of the progress which photography has undoubtedly made in the last half a century was due to Sarony, who was a man with the intelligence to see that it was necessary to do something more than the other people were doing. Then they commenced to make photographs with dark backgrounds, and it ran from the darkened to the extremely black background. Now I will say as a criticism on photographs, not a harsh criticism by the way, that the backgrounds are the principal faults.

First there was the hard, white backgrounds that spread out over the paper. Then we went from that extreme to the present extreme of getting black backgrounds, which are better than white, but not very much. There must be something on the background that will let you drop from the head comfortably. You get off of one of those old cards with a bang on the background. Your black background will let you off a little easier, but not quite easy enough. There should be a little detail.

Now we will come to the arrangement, leaving posing out. Arrangement pure and simple. And I will ask you to go back with me in the history of arrangement. The first arrangement was made by the Egyptians. The Assyrians had pretty good ideas of drawing, but they had little arrangement. The Egyptians never accomplished more than this. First a series of upright lines opposed to horizontal ones. Then some very bright fellow succeeded in evolving the wave line. It is said that the wave line came from much observing the water of the Nile. How true that is no one can tell. Anyway they finally developed the wave line. The Greeks carried that into this form some hundreds of years later. (Illustrating on board.) That is, they broke it. The Romans went still farther with those things and made spirals, and they broke them off usually very roughly. There is a progression from this straight line. The composition progressed in exactly the same manner, although the Egyptians were extremely uncompromising and evolved a strong school of portraiture. They could not make composition; their compositions were a number of straight lines. Straight figures like this were getting to be made farther. Now the Greeks carried that form of composition a little bit farther. They filled forms by opposing the lines, straight lines, in opposition to each other, opposed at very nearly right angles. It was all straight lines. There were no flowing curves in them. The Romans carried composition still farther, and began to use another form of curved lines which ran together and made a hollow form. Now there you have the three primary positions of forms. Straight lines used only in opposition to each other, straight up and down or horizontal, straight lines opposed to each other in a diagonal manner, and curved forms which ran together. The development from that time to the time of the great masters in the old countries is not difficult to follow. They simply used one of these three forms, but met with some complications. I have dealt so far with the use of lines. Now we will take the use of light and commence at the time of the first Holland painters, Rembrandt, with whom you are all familiar. It is said that Rembrandt in his scheme of composition took a lens and cast the light of the lens upon the wall obliquely, so that the greatest light came out to the left hand of his picture, and that the greatest gray came out to the right hand. Now, if you will note, you know this will be the focus of the light and the tail of the focus will come off here in the gray matter.

[At this point the lecturer turned to the blackboard and illustrated his remarks with diagrams and pictures. Without these diagrams it is impossible to record the address in such a manner as to give it meaning to the reader. We, therefore, omit the mere words of the speaker, which without the illustrations would rather tend to confuse than enlighten.—EDITOR W. P. M.]

Summing up Mr. Bement said:

Now I would like to say just one more word. The centre of interest is the important part. Next to the centre of interest in logical sequence there

should be a secondary interest. This is going into complications; I have tried not to complicate anything, but I must say there is a centre of interest, a secondary interest, and then your background. Now, I would say, make your figure cast a shadow and leave your background. Make your figure your important interest. Place something near it which will attract the eye a little less than the figure. Let it get off in the background. Be careful not to cross the edge. I dwell upon that because it is very important. I find many times a good picture has been spoiled or harmed by getting off the edge with too much force and carrying your eye off with it. You will say, "How are we to get the artistic part which you spoke of at the beginning of the lecture?" It is a pretty difficult thing to show. There can nobody pour it into you; you cannot read an essay or a lecture and become an artist. The only way that you are to become an artist is to look at good things and to quit looking at the bad things, if you can, and pay attention to God's earth. The man who has understood the language of nature is pretty likely to have the better opportunity of becoming artistic. It is a matter of hard study, of long experience and a love for the beautiful things. Dr. Hunt, of Boston, once said: "We see too many pictures and we do not look enough at God's earth." Was not that true? Have you not seen too many pictures? Have you not turned over the pages and said to yourself, "I wonder why they ever published this thing." Then you say, "I think if you changed this leg a little bit, or raised there a bit, or changed the shape and cut it here it would be all right." Why do you not leave that alone and then go and see if you can find a good one and look at it? When I first commenced to study art I looked at every picture and tried to find something good if it was there. But you will get more for your money and improve your time if you will spend less time looking for it. I would say, look at the pictures of the old masters; study the paintings of the best men. They will show you arrangement and the instinct will come. Ninety-nine times out of a hundred your rule may help you painting, but the hundredth time you may break the rule and get a better picture. Leonardo di Vinci spent a lifetime writing a treatise and broke all the rules he made the very next picture he painted, and the next picture was the best one he ever painted.

I want to thank you for the honor of having been able to speak to you. I will announce that to-morrow I will criticise the pictures which are on exhibition, trying to point out to you where some of them might have been made a little better, and telling you the good points in each one first so that you will not feel offended. However, I think anyone who is interested enough to make photographs would be willing to have his work criticised. At least I am glad to have my own criticised. I thank you.

If anyone is sufficiently interested to go to the Art Gallery in the World's Fair grounds this afternoon I shall be glad to see them. We are not allowed to take a great many in at a time through the gallery, but if anybody wishes to go we could divide into parties and I would be very glad to show you what I think are good pictures. And I am sure that you cannot do better than look at some of those good ones over there because there are some splendid ones among them. But I would say, be careful you do not look at too many. One or two a day is enough. You cannot see more than three pictures in an afternoon and get anything out of them. I do not believe you can. I cannot. I have to go through a gallery fast the first day and come back the second day and find a picture I saw the first day and look at it and then go back.

President Reeves: I have the pleasure of presenting to you Mr. Frank M. Steadman, who will announce his subject himself:

The address of F. M. Steadman is printed on page 519 of this issue.

Mr. Hearn moved that a committee be appointed as per Mr. Steadman's request. Mr. Wilson seconded the motion, and the motion was carried.

The president appointed Simon L. Stein, F. Schanz, and E. W. Brown.

Adjournment.

FOURTH DAY—FRIDAY.

The convention was called to order by the President at the usual time.

The committee on resolutions made the following report:

Report of Resolutions Committee.

In regard to the President's recommendation that this Photographers' Association of America be re-incorporated and a board of three trustees appointed, so as to conform to the State laws of incorporation,

Be it Resolved, That the President of this Association do appoint three trustees, who will take charge of the sum of $2000.00 of our present funds, and safely invest, for the future welfare of our Association; and

Be it Further Resolved, That the President shall appoint a committee on constitution and by-laws who shall frame laws for the future government of this Association under its proposed re-incorporation.

Be it Further Resolved, That the said trustees shall arrange for permanent quarters for preserving the records and property of this Association.

Be it Also Further Resolved, That the sum of $500.00, which was voted at the last convention to be given toward the Daguerre Memorial Institute upon a receipt of a favorable report of the committee appointed to investigate the question of the advisability of the permanent repository for the Association, shall be given into the hands of the trustees for the purpose designated, which sum is to be independent of the $2000.00 above mentioned.

Be it Further Resolved, That the President's recommendation that some recognition for excellence attained for work exhibited at our next convention be referred to the incoming board of officers for consideration.

Be it Further Resolved, That the *Association Review* shall become a permanent fixture.

And be it Finally Resolved, That the thanks of this Association are due to the manufacturers and dealers for their cordial support and assistance in making this convention a success.

Respectfully submitted,
ALFRED HOLDEN,
S. M. HOLMAN,
GEORGE M EDMONDSON,
Committee

Mr. Smiley moved that the report of the Committee on Resolutions be accepted. Mr. Schanz seconded the motion.

The motion carried, and the report was accepted. The President appointed S. L. Stein, W. H. Potter, and Alfred Holden, as trustees.

The President: Mr. Lively is chairman of a committee appointed by the State Association to present for our consideration this morning something they wish taken up. That really would come in the order of new business, but we have a place for it just now, and we will consider it at this time.

Mr. Lively read the following report:

MR. PRESIDENT, LADIES AND GENTLEMEN: I feel greatly honored by being selected from among so many of my brother photographers who are better qualified and capacitated to discharge this duty than myself, which is to bring up for your consideration the subject of a closer union and co-operation of all State Associations with each other and the National, by placing the State Association in the same relation to the National that the high or training school occupies to the university. This matter was brought to the attention of the officers of the various State Associations assembled at Indianapolis in 1903, and a committee appointed thereat by your honorable First Vice-President, Charles W. Hearn, whose duty it was to propagate his idea among the State Associations and report the result back to that temporary organization this year in St. Louis. The report of this committee, showing the result of their work during the past year, with State Associations, convinced the officers of the various State Associations here assembled that the movement will result in much good to both the National as well as State Associations, and by motion the following resolutions are respectfully submitted with the request from the officers of the State Associations that you take action upon them at this meeting:

First, *Resolved*, That we the National Association co-operate with and foster a closer union of all State Associations with each other and the National, by receiving and hanging pictures sent to this Association from members of State Associations attaining the degree of excellence prescribed by the executive board of the National, and that this resolution shall not be construed to mean that the National debars exhibits from members of the National who do not hold membership in State Associations.

Second, That we request the abolishment of the prize system of conducting conventions that is still in favor with a number of State Associations, and that they adopt in lieu thereof the certificate plan together with a badge of merit, and recognition, suitably engraved, to be awarded to all who reach a degree of excellence determined upon by the executive board of the National Association, and which will entitle the owner to a certain standing in the National Association.

Third, *Resolved*, That we as a corporate body (having the power to do so) create a degree in photographic art which shall correspond to that of the National Academy of Artists, and confer the same upon all who attain the degree of excellence prescribed by the National executive board, which shall carry with it the privilege to affix suitable letters to the name of the Honoree appropriate to this degree.

We further recommend, that the National appoint a committee whose duty shall be to divide the United States into districts, and that the National shall hold its conventions in the several districts alternately, beginning at Boston next year, in order to promote the growth of the National, and the best interests of the profession. We further recommend that the National supply the various State Associations with the badges of merit in order that they will be uniform and also become badges of recognition.

GEO. G. HOLLOWAY,
ALFRED HOLDEN,
J. R. SNOW,
W. S. LIVELY,
W. H. PATTIE,
C. G. LEWIS,
Committee.

Mr. Potter moved that the report be accepted and referred to the incoming executive board for consideration. Mr. Moore seconded the motion.

The motion was carried.

The committee appointed to draw up resolutions regarding the death of deceased members made the following report:

WHEREAS, This Association has learned with great regret of the untimely death of our most respected and beloved frater, James Inglis, a man who has been ever a friend of the best in the art of photography, a man with the courage of his convictions, and who ever fearlessly supported them; therefore,

Be it Resolved, That we express our heartfelt regret at his death and extend to the family our deep sympathy in their bereavement. And, furthermore, that the same be spread on the minutes and that a copy of this resolution be sent to the family.

R. P. BELLSMITH,
F. DUNDAS TODD,
S. L. STEIN,
Committee.

WHEREAS, We learn with regret of the death of James F. Ryder, of Cleveland, O., one of the veteran photographers of this country, and former president of the N. P. A.;

Be it Resolved, That we, in convention assembled, do hereby express our regrets at his death, and desire to extend to the family our sincere sympathy, and that the Secretary be instructed to forward same to the family of the deceased.

R. P. BELLSMITH,
F. DUNDAS TODD,
S. L. STEIN,
Committee.

Mr. Bandtel moved that the report of the committee be accepted. Mr. Wingus seconded the motion.

Mr. Giffin: Mr. President, I regret to say that I feel somewhat disappointed at this report. The death of these two distinguished gentlemen which has come upon

us at this time is to me one of the saddest occurrences within this Association. Two men have passed from our midst whose places cannot be replaced. I had expected more from this committee than an ordinary resolution of respect. With reference to Mr. James Inglis I want to say to you that no man has ever been connected with this Association who has done so much for us as that man. Most of you are familiar with the fact that his family (without wanting to make anything personal) are almost destitute to-day. It would be wise, I am sure, that the photographers here assembled contribute something more substantial. I do not want to make a motion as coming from the Association, but I apply to the photographers; and if it be in order, therefore, I move you, Mr. President, that—

The President: Your motion is not in order, Mr. Giffin. There is another motion before the house.

Mr. Giffin: I, therefore, offer an amendment to the motion in connection with this report, that a committee be appointed, or that the photographers here to-day contribute something to Mrs. James Inglis, and that a committee be appointed to distribute this in a suitable manner, if I can embrace the two motions.

The President: You will have to make your motion state a little more definitely. Do you move that the chair appoint a committee to receive contributions, or do you waive that until we pass our resolutions of respect? which, I believe, would be better. Then we will hear you again, Mr. Giffin, with your motion.

Thereupon the resolutions reported by the committee were adopted.

The President: Now, Mr. Giffin, do you wish to move the appointment of a committee to receive funds for the family of Mr. Inglis?

Mr. Giffin: I do. And, as a further evidence of that, Mr. President, may I have another word? I feel justified in that statement. I am sure there are a number of people here to-day who realize and appreciate what I have stated. There can be no exceptions to these suggestions, and I ask, as a matter of courtesy to the family of James Inglis, that a committee be appointed.

Mr. Potter seconded the motion, and the motion was carried; and the chairman appointed J. E. Giffin, Wm. Godfrey, and W. H. Moses.

Mr. Bellsmith: I would like to know a little bit about who this family is? Are they grown-up children? If you mean the widow state the widow. I do not know that he left any small children. I do not know how destitute the widow is, but if she is she ought to be helped. But state the widow, do not state the family.

Mr. Giffin: I will say for the gentleman's benefit, it is for the express purpose, for the widow's benefit.

Mr. Todd: Mr. President, I think that the Association will bear with me while I say a few words about my old friend, James Inglis. We were together considerably, and I remember way back in 1897 we were sometimes described as those two Scotchmen in Chicago. I do not care to use the words in public. Mr. Inglis and I were the closest friends. We got acquainted in the year 1892. He was in my office the day before the sad accident happened that carried him away. From 1892 to 1894 we never had an unkind or an unpleasant word between us. We rarely agreed upon anything; everything between us was debatable, but we had a great respect for each other, and I had a most sincere admiration for the bigness of James Inglis. In 1895, at the tri-convention, I saw some pictures in a little town in Ohio by a photographer named Hollinger, and I expressed some admiration of those pictures, much to the amusement of the photographers at that time. When I came back from the convention I told my friend, Mr. Inglis, all about them. And after a little while, some months after I had talked, one day he let the cat out of the bag that he knew that kind of lighting and could get it in a simpler manner than my friend Hollinger had been getting it in Dayton Ohio.

I then asked Mr. Inglis if he would tell his story for the benefit of photographers. And the old man did it for the benefit of photographers without one cent of reward. All the material movements that you men are proud of to-day in connection with the business was started by James Inglis. And as some of the photographers have said to

me that they want a chance to show how grateful they are to James Inglis, not so much to help Mrs. Inglis, but to show their gratitude to James Inglis, because you can never repay what he did for you. Mrs. Inglis is not well fixed; the old man died practically without a cent. If you can help Mrs. Inglis and show your gratitude that way, do it. If you prefer some other way do it, but do not forget the man that did so much for you.

The committee appointed to confer with Mr. Steadman made the following report:

MR. PRESIDENT: Your committee for the investigation of Mr F. M. Steadman's method of measuring light and speeding plates, beg to submit the following report:

We believe that to express the intensity of light in simple numbers and to think of it in units, as we now consider temperature and volume, would tend to great simplification in the practice of photography. Mr. Steadman's method of doing this seems thoroughly practical.

Actinometers have for many years been in successful use and the theory involved is known to be practical.

The different meters, as now made, differ one from the other in the degree of work that the light is allowed to perform, such work being determined by a tint selected arbitrarily by the manufacturers and to which the discoloring paper is designed to match in its discoloration in the light.

For this reason no uniformity of measurement through the world can possibly exist. The use of special papers, as well as the necessity of buying a meter, also prohibits a worldwide standard. For the reason that Mr. Steadman's method is based on paper always at hand in all parts of the world and that no expense is involved beyond the strips of paper used and a small pocket note-book with a hole in the corner, in which to tint it, your committee take pleasure in recommending the following standards for the measurement of light intensity:

For the standard paper for the measurement of light intensity, we recommend solio, and all printing-out papers which, on measurement, shall be found to agree with it in sensitiveness.

For the standard amount of work that the light shall do, we recommend that degree of discoloration which becomes first plainly distinguishable from the original color of the untinted paper. Such tint to be made through a hole in any thin opaque material, as the corner of a note-book, the cover being raised to observe the tint.

For the scale of values we recommend the following as practicable: one eighth, one-fourth, one-half, one, two, four, eight, sixteen, thirty-two seconds, one, two, four, etc., minutes. For greater accuracy the interval half-way between any two of the scale may be used as three, six, or twelve seconds. The shortest interval, one-eighth of a second, is the intensity of the light out of doors on a clear day with the sun from fifty to ninety degrees above the horizon and no shorter greater intensity therefore exists under ordinary natural circumstances.

Furthermore, as to Mr. Steadman's method of speeding plates, we recommend that the Association officially request each and all of the plate and film manufacturers of the United States to investigate the method with a view to establishing a uniform system, should the method be found satisfactory.

E. W. BROWN,
S. L. STEIN,
F. SCHANZ,
Committee.

Mr. Bandtel moved that the report of the committee be accepted, and Mr. Hearn seconded the motion. The motion carried.

President Reeves: We will now have "Criticism of Pictures," by Prof. Frank A. Bement.

[While the following criticisms were made upon individual prints shown by the speaker, in rapid succession, the reader will find many points of interest and will obtain assistance by a careful reading. Were it possible we would gladly publish the pictures themselves, but as this is impracticable, we give Mr. Bement's criticisms and commend them to the careful study of all interested in portrait composition.—EDITOR W. P. M.]

PROF. BEMENT: In the criticisms this morning I think it will be well to confine them to the talk that was given yesterday, the subjects which we discussed yesterday. Now, if I can drive home that one thought that I tried to give you yesterday, that circular compositions were a good thing to use, the first step in composition with the use of the circular line is an advantage to any composition, then you have at least one thing to carry home with you. I find that in my own experience I have been to so many art lectures where the man told so many things that I could not remember any of it.

In the beginning I will criticise those pictures noticed in the talk that I gave you yesterday. There is one other point that I would like to add; it is very important in picture making, there is a vast difference between the male and the female figure, and a vast difference should be made in the pose. A woman naturally droops; her shoulders are lower than the shoulders of a man. And line on the woman should be made as soft as possible unless you are making a dramatic study, which rarely happens to the photographer. So I would call your attention as we go from these portraits here to the fact referred to, that a man should be made to resist gravitation. If you make him in a sitting posture, it should be in a posture from which he can rise with ease to a standing position. If you make him reclining it should be so little reclining that he could slip easily into an upright posture. I think a woman's figure should never be made perfectly straight. "Never" is a pretty emphatic and dogmatic statement. I realize the fact that I am talking about portraiture, not about decorative compositions and with which you make pictures. I think a woman should not be made straight. I think something on her should curve. There are women, of course, who have high shoulders and who naturally should take an upright poise; give them a little bend if possible. Now that is dogmatic. You may dispute it probably by your next photograph; yet again I will say that ninety-nine times out of a hundred I believe that to be the truth.

I want to call your attention first to this picture here. The picture in itself is a model. The quality of her dress and the pose is decidedly interesting. It is good material, exceedingly good material; the pose is good, the arrangement

and the space is good. I find that you fall too abruptly from the black or the darks of the picture on to the plain background, which is accentuated by the extreme blackness of the frame. There, again, I would call your attention to the fact that white is a dangerous thing to work with. If you must have a white on your ground, be careful what you put around it. Be careful of this black frame. I think that in this particular picture you will find that very well exemplified. There is too much white around the picture and the frame itself being black accentuates the effect, and this is very white here. I like the pose, I like the girl, I like the quality of dress, and I like the way that you get off, the way the man gets off from his frame. You see he has been wise enough to reduce to vignette this place and get off comfortably.

Now here is another one. I am afraid it is a little small. Here is another one in which I like the girl. I like the picture very much. I like the placing of the figure on it. You will notice the lines have been carried out in the letter S which I did not talk of yesterday, but which is just as good as the circle. The lines are all smooth; there is nothing broken in it. The character of the picture is good. But it is badly framed. There is nothing in the frame which carries out the shape of the picture. The frame should have been, the frame ought to have carried out the shape. Is there any reason why a square frame is put on a very oblong picture? There is no particular reason why it should be. This picture at the corner is a fad. Fads do not live. They may sell you one picture, but the man who follows up closely the fads I have doubts about his ultimate success. I believe that legitimate things are the best things with the people. and I do not believe you can fool the public for any length of time by even fads.

I want to call your attention to a very charming group of mother and children. I would like you to notice if possible the legs of the children on the outside. I believe if that point here and this point here, the little white socks had been subdued, that the picture would have been very nearly perfect in arrangement. You will notice that there is sufficient concentration in it to keep you to the picture; you do not try to get off of it, you continue to circle here. The smooth line at the bottom of the dress, the nice combination of heads, the posture, and the evident interest somewhere in front of the picture, an evident concentrated interest that is quite unusual. It is difficult to photograph groups and it is rarely we find a good group of people in a photograph. Men like the old masters succeeded in doing it, but our modern painters do not succeed any too well. If you have two abrupt parallel lines in the edge of the composition it may deflect your eye from the centre of the composition off to the frame. Here is a composition of angles, to which I referred a little yesterday. I will just simply say I think the composition is very good, and not tell you anything further, as we will dwell on the circular composition to-day. It is a composition of angles and I think the spaces in there are interesting. I find that there is considerable light in it.

I want to call your attention to the inaccuracies with which this picture has been completed. If you will notice there are a number of parallel lines on it. There are two, here are two, here are two that sweep up here, although it might have been good if it had been completed. It has been broken and offset by another curve which carries your eyes off of the picture. It is not in sequence, this line carries you off here; the interest is not there, the interest is not concentrated, for you do not know at what point you are most interested. I am sure I do not know whether it is the dress, the hat or the white feather on the hat, or whether it may be this background out here. Then I want to call your attention to another fact. I want you to look at the space around here. There is too much of it. The shape of the frame is not proper. The shape of the print is not proper. There is not sufficient space here, and there is too much here. The action of her head disputes the action of her body. This line runs up this way to her head and throws you off at a tangent there. Now I think there is a great deal to be said about framing a photograph. I think this frame is unsuitable to this print. I think that this frame for this print should have been a very narrow black frame with perhaps just a bit of gilt on the inside. It is hard to say just what would be best, but I am quite sure that you will agree with me when I say that the whole is monotonous, that the color of the frame is too much the color of the print. I look at the frame and that is a thing that you should not look at when a picture is complete; you do not notice anything about it except to go away and think that it is good. When I look at this I see the frame. As I told you yesterday it is possible to make a good photograph on white ground. This photograph I think does not jar in the least. I find that it goes back from the observer to the frame nicely. We mean there is a space between this object and the background. Now I know the object of framing is to send the picture back. If the picture remains on a level, then it is not a success. We will refer again to this one and you find that the girl remains on the same plane as the frame; she does not drop behind into the space. I find in this one, although I said it is difficult to make a head and put it on a white background, that she does not get down behind the frame, and I would like to call attention to the extreme good taste in which the frame has been made. It is black, quiet with a little narrow line of gilt here which gives it a fineness and makes it look rich, but not too rich. It does not strike you in the face, as the boys say in the studio. It is quiet, rich, and in good taste. I think we can commend that framing, although when we make an ellipse, when you make an oval, you have avoided the difficulties. Here, now, is the point: when you put a thing into an ellipse you have cut out the places you usually have difficulty with. I think a square picture or a regular picture is a much more difficult thing to make than an elliptical. I want to call attention in this small portrait to the fact that the light and the dark are not well distributed. The light in the corner is so brilliant that it is with great difficulty you look at the person to whom you should pay your attention. I like the girl, but the window is so strong that I cannot like her enough Now I want to call your attention to a rather graceful lady. She is correctly posed I think. I think she is very graceful. I think she carries out the idea of circular composition. The line swings up to the head, the point of interest, with such ease and such grace that you cannot help but be interested in that swinging line. I am not talking about qualities of tone light, though I think they are not disagreeable, but I would like to call attention to framing, which I think is inadequate. It needs something low and strong, too hollow here in that place. There is too much space here. There is no reason why this should be left. There is a fad. Do not leave these empty spaces. They do not do anybody any good. If you cannot think of anything to put into those spaces, do not make the picture. I would say again that the frame should have followed more closely the shape of

the portrait. I mean by the portrait this space here. Again I would say it was dangerous for the man to have left this big wide space here. I am going over some of the things again to emphasize them. Be careful of your white places. You know if you put a picture on the wall that the white space is going to attract you clear across the room; when you go in to see the picture on the opposite side of the wall you will immediately be attracted to the white and the chances are that it will be so white, so very white and uninteresting, that you will never go near enough to see the picture. I think that this picture is well framed. I think the frame is the right color, the right texture, perhaps a little heavy, that is a little too wide. I feel the insufficiency of the man's physical side, I feel that he is not quite well enough supported by the top. When I first saw it I thought his head was too near the top, I thought he was cramped in his space above the head, but I do not think so the more I see it. I think he had not sufficient room from right to left. I think if he gave a half-inch on each side or a quarter of an inch, that you would have a better-placed figure The tone is good and quality is good, the expression is good. I can imagine a man in that pose, it gives you the idea of character. I find that this man interests me personally and I feel all the time that it is a little too bad that he did not have room to move around. I think he is cramped. I think photographers are a little apt to take off too much. If it is not right you take off something, and if it is not right you take off something more and pretty soon you get it down too fine. I would be careful about that cutting. Is it not possible to arrange pieces of paper and make up your judgment that way by moving the paper in a little bit or moving it out until you find where to cut it? I would not take white paper either. I would take gray. I suppose you know more about those things than I do, so I will not give you any advice, but I do think you cut them too much a great many times.

Now I want to call your attention to something that you would say immediately is wrong. I talked with a man in Boston who made this picture and he said that he felt at the time that it was not right, but he did not know why That young man is cut out about the right place on his body. The cut should be made just below the hips about where he has made it, or the body should be cut about there. It is unsafe to cut anywhere else. It is in an upright position. He said if I cut it so that his legs would not show I would lose my action, which is undoubtedly true, but I think if he wanted the action of that child that he should have taken the whole figure. What is the use of making the legs show action when they do not show any feet. I think the little fellow looks crippled. There is considerable action, but his action is the action of somebody who is trammeled. There is not the free movements of the child. I think that this face down here is the very worst thing I looked at. I think that place is where I looked first. That should not be. I should have looked some place up here. I would like to call your attention to the photograph which is nearly flat and yet has sufficient in it to carry the eye off of the edge and carry you pleasantly to the edge, and you come back without any difficulty to the centre over this uneven surface here.

I want to call your attention to the picture of a little girl from Maine, from Portland I think. I do not need to say anything of the portrait. It is very clever. She is a very dignified and stately little girl. She is quite queenly and royal in her attitude and the photographer has been clever enough to understand that she is stately and he has made the frame stately. I would commend to you the frame, which fits and suits so well the little girl. I want to have you look at the nice quality of light which falls into the picture. It is very charming. It is so soft. I think there is good light and good arrangement and good spacing in this picture. You see how nicely the hat turns the eye back into the picture, how well the hands balance at the proper point. The line of the umbrella supports the figure, which would otherwise have dipped forward a little bit. It needs something down there to support it, so the umbrella did it very nicely indeed. The background is light enough for any of you, I think, yet sufficiently diversified to hold the attention. Here you have the picture of a woman which is good in tone, good in pose, and not bad in arrangement, not particularly good in arrangement, but it is not bad, it is mediocre in arrangement; the things are all charming, but there is a fatal mistake. You do not look at the girl at all. You are interested only in that musical instrument. As I looked I thought to myself what sort of an instrument is that, and I did not get interested in the girl at all as I usually do.

Now I want to refer you to one of Mrs. Kasebier's pictures. Now we are treading on dangerous ground; we will have to be careful what we say. It is an individual portrait and it has broken every rule that ever was prescribed to artists in public. I think there is nothing in it which you may call acedemic, yet I believe that you will agree with me that there are some very interesting qualities in it. Now we are going aside from our arrangement for a moment and discuss pictorial artistic arrangement, portrait arrangement, and decorating arrangements. It is not a portrait, it is not pictorial arrangement; this is purely and simply decorative. Do not get these two confused. A decorative motive is a motive which pleases the eye, not the intelligence. You have decorations put around your room not to appeal to the intelligence. If you want to appeal to the intelligence you would have verses printed there; you put the decoration around the room to appeal to the heart of the person, to the subconsciousness and love of color and love of form, and pictorial arrangement is something of this sort. If you were burying Napoleon you would put upon his tomb, as Frenchmen have, pictures of battles and allegorical subjects which tell his story. If you are making a portrait you would try to give a good picture of the person and tell as much about his history as possible. Mrs. Kasebier has made a good decoration. You could say, "That is a bum portrait, but it is a mighty good decoration." I think there is a good deal could be said along that line. I wonder if we are wise enough and intelligent enough to separate as we look at a picture and know immediately a good decoration and a bad portrait or a good portrait and a bad decoration?

I want to call attention to another that is exceedingly nice in quality. I think anyone that has seen it has been charmed with it, but I think the vignetting has been so severe at the bottom here that I notice it, and that is fatal. Nobody must notice how you get off your picture, and I knew that he had vignetted this place here. You say how shall he fix it? That is easy to pretend to know, but a hard matter to know about. I think he should have given more out here in front so that he could have pulled this line, this line of interest, and we are talking about the circle again, this line that is the line of interest, so he could have pulled this line over a little farther and then vignetted a little more comfortably. I find that black spot is pretty

black and attracts a little too much attention. The young lady in question is nice in tone, poise, and the arrangement would not be bad if he had not dropped in so much interest up at the right-hand corner. Again, he did not get off his picture comfortably. You are interested enough in this place to keep you there momentarily, but directly afterward you get interested in the curtain that hangs down, and out of the picture you go, and you do not get back. I think I can add one more word. That the poise is exceedingly womanly and self-contained and reserved, and it is too bad that the curtain does fall as it does, as otherwise it would have been exceedingly charming.

I want to call attention to this one. I am afraid you will not be able to see it. It is a little composition which breaks all the rules of composition again. It is not acedemic. It is exceedingly charming, and I think you may learn something from that background, although it may not be photographically good. I am not supposed to know anything about that; sometimes I am glad I do not. But you will find that background is exceedingly interesting. Look at the tone; very light at the top, it slides away gradually into almost oblivion at the bottom, and makes the head balance comfortably against it at the top, and the white shoes balance nicely at the bottom. Now I have avoided taking into consideration some of the very extreme examples. I think it is not well to cultivate too critical an attitude. I think that criticism is only good when it gives the person whose pictures you criticise assistance. I do not believe in saying that a thing is bad without telling why it is bad; and some things are so bad you cannot tell why they are bad. I have not brought down here the best pictures in the exhibition, because I think a person who makes a good one, as some of those are, do not need to have any comments. I think it is sufficient to make a picture as good as any of those. In fact I would be glad to make some as nice. I would be glad to meet any of you personally and talk to you about your pictures. I can talk to one person and help one person more than I can many. I would like to see you again this afternoon. We will go through the museum and fine arts and we will find some bad ones over there too. I thank you very much for your attention.

President Reeves: Mr. W. G. South will talk to you for some time on "Color Photography."

MR. PRESIDENT, HONORABLE MEMBERS, LADIES AND GENTLEMEN: In consequence of my display of photographs in natural colors in the Liberal Arts Building, I have been requested to talk to you on Color Photography.

Owing to the fact that we are reminded daily that someone has trapped the rainbow and can reproduce photographically all objects in natural colors, it makes it quite a difficult task for one to give a talk on the subject, especially when you have been disappointed so often.

After due reflection, I am convinced that the reason for your disappointment in such glowing statements about color photographic finds, is not that Color Photography has not been discovered, but that you still remain unable to produce a color photograph. In other words, Color Photography has been discovered, but no simple practical process of producing real color photographic prints has ever been devised. Thus we have enough color photography and no color photographs.

This seems like a queer statement, but a glance over the prior arts will assist in helping you to agree with me.

Photography, like other sciences, has two schools, the old and the new.

The Old School, or what is termed the direct process of photography (based upon the discoveries of Niepce and Daguerre) is now a relic, the only remnant of which exists in the tin-type. By such a process each picture requires a separate camera exposure and all objects photographed are reversed. Although wonderful, it was soon found that if photography was ever to become commercially valuable, a method of quickly producing duplicates must be devised.

Thus, after much research and labor, Fox Talbot, an Englishman, invented the first practical negative process which gave birth to the New School.

It is needless to say that this invention was of such importance that it completely superseded the Old School, or direct process of photography.

There have been many processes of direct color photography devised, all wonderful, yet nothing of any consequence came of them save possibly the Lippmann process (known as the interference method), and even this process never proved itself commercially valuable. Why? Because it was a direct or Old School process, the fruits of which we have already mentioned. If we wish a commercially valuable process of color photography, the New School of negative process must supply it.

We will now take up briefly the advance made in the New School in this direction. Steadily, after the discovery of the first negative process by Fox Talbot, improvements along these lines appeared. Paper as a support was superseded by glass. Collodion emulsion was introduced by M. LeGray in 1847. The collodion wet plate gave pictures of such wonderful quality that to-day it still retains its hold on some branches of industrial photo-engraving.

However, scientists, noticing the inability of the silver emulsion to photograph certain colors (in monochrome), experimented with the color-blind plates in order to correct this fault.

The first successful orthochromatic emulsion was invented by Dr. Vogel in 1873, who made use of unstable dyes for bathing the plates, which he found answered the purpose fairly well.

The introduction of the gelatine dry plate about this time attracted the attention of photographers to such an extent that orthochromatic photography seemed to be forgotten, but this new plate was color-blind also; thus experimenting began anew in order to orthochromatize it, like its predecessor (the collodion wet plate).

Results of such experiments have placed at our disposal plates which are of excellent quality, adapted to all kinds of orthochromatic and color photography. Only recently have we added to our long list of commercial orthochromatic plates the new (ethyl-red plate) sensitive to the whole range of the spectrum.

The introduction of this new plate is due to the efforts and researches of two noted chemists, Doctors Miethe and Fraube.

So far as negatives for producing color photographs are concerned, every desirable quality has been obtained But, as I have said, we have no color photographs.

If this is true, then what have we?

Why, we have tri-color photo-engravings, the pictures from which cannot be produced without excellent printing presses and equally excellent printers.

We have lantern slides and color transparencies, which are beautiful, but they are not photographs.

We have physical prints from dyed or stained positives which are not permanent and are mussy

and dirty things to handle, and they are not photographs when finished.

Now and then a photographic print is made by superposing three carbon prints or by fading out unstable dyes, but such methods are not of any commercially practical use.

Thus a process for producing photographic prints in colors from the excellent negatives now possible must be simple and easy to work, permanent in results, and a printing-out process requiring methods of working not far removed from the monochrome processes now so extensively used. Such a process I believe I shall have the pleasure of demonstrating to you now, and which I call the "Solgram."

The three-color theory is well known to most of you as the basis of all color processes, whether direct or indirect. This theory has been twisted and turned in every which way to accomplish the desired end (a photographic print or photograph in natural colors).

For years I have been convinced that the three colors—yellow, red and blue—had some particular office in the world of art except tinting objects, and I invented the Solgram to prove my theory (namely that red was the base and warmth of a picture, blue was the great drawing master, giving detail, shadow, and form, and yellow gave to our work light and life).

I reasoned with myself thus: If red is the base, it should be placed first upon our paper (or suitable substance), and as its office is simply to give warmth, tone or color, it need not be sharp and wiry; therefore the old gum bichromate pigment process would suffice, with the advantages that the pigment could be chosen for permanency, and also that by reason of its color the print, upon which a surface would be visible, doing away with actinometers, etc. After printing and washing we would obtain a beautiful crimson picture.

Now the blue print, which gives detail, drawing, form, and shadow in the gum-pigment process, I was convinced would not suffice for several reasons.

1. Above all, if a blue-gum pigment should be painted over our red image, it would obliterate it, making it impossible for anyone save an expert to obtain correct registration.

2. As the blue print is to be used for detail, form, etc., the gum-pigment print would be very unsatisfactory; thus I was led to adopt a chemical compound, which would give the required color upon being exposed to light. This idea carried out, I at once accomplished the two main points in practical color photography, namely, a means by which the shadows, etc., could be formed upon the crimson print by slowly printing and not having the fault of obliterating our crimson under first print.

3. The yellow which gives light, sparkle, and life to a picture could be printed last over the compound image, crimson and blue giving a finished print. This last print, which, like the first (crimson print), had nothing to do with the drawing, could be made by the gum-pigment process, care being taken that the yellow should not be opaque. Thus I invented the Solgram process. However, after all this work was completed, I worked to perfect and form a complete color balance so essential to obtain pictures which would not appear false. I have here prints in different stages of the operation.

Mr. Hammer moved that a vote of thanks be extended to Mr. South, and the motion was carried.

Report of Nominating Committee.

The Nominating Committee reported the following nominations:

President, J. Ed. Rosch, of St. Louis, Mo.

First Vice-President, C. J. Van Deventer, of Decatur, Ills.

Second Vice-President, A. T. Proctor, of Huntington, W. Va.

Secretary, M. B. Parkinson, of Boston, Mass.

Mr. Parkinson: Mr. President, I do not know whether it is proper at this time, but it will be absolutely impossible for me to be your Secretary. I thank you for the compliment of nomination. My reason is that I have no talent for that kind of work. I have not the time for it, and I know myself too well to put this Association in jeopardy in such a way as it would be jeopardized if I were the Secretary.

The President: Mr. Parkinson, I believe the time for this will be when we proceed to the election of Secretary. I believe that I am correct, if you will kindly permit the suggestion.

We will proceed with the election of President; and ask if there are other nominations for President.

Mr. Holden: Mr. President, it seems to me that sometimes we are forgetting certain things. All good men have ambitions, and all good men desire to get higher. We, as an Association, should always take this one fact to heart, that men who have been well tried, men who have been before the fire, and men who have gained valuable experience should be the ones selected to govern this Association. I have in mind the hard work that has been done by one of the officers of this Association for the past two or three years. You know that he has worked well; you know that he has served you well, and to him, I think, the honor should be given, for to him honor is due. I have the pleasure to place in nomination Mr. George H. Holloway.

Mr. Potter: I second the nomination. Mr. Holloway has served you now for several years. He has been around among you. His work speaks for the man. It is not necessary to say more. Mr. President, I move the nominations for President be closed.

Mr. Giffin: I ask the chair. Am I recognized?

The President: Do you wish to place a name in nomination?

Mr. Giffin: I do, sir. I desire to place in nomination a man for this most important office of President of the National Association of America, a man whose ability is unquestioned, whose integrity is unquestioned, a man who is a shining star in the photographic world to-day, a man whose social environments are something to be admired. A gentleman in your presence has declined the nomination of Secretary. Well, may he afford to do this? A Secretary's office and a President's office are two different things altogether. I come before you to-day with the name of a man for whom eight hundred people in convention at Boston ask your consideration. I refer you to Mr. Parkinson, of Boston. Gentlemen, without further discussion, I believe, it is due Mr. Parkinson, it is due this Association. And I want to say to you that it was not because of any antagonism on the part of these gentlemen whose names have been presented; but I present his name for the benefit, as I see it, of this Association.

Mr. Parkinson: I had some intimation of this, but I did not know until a few minutes ago that I was on the slate for Secretary, and it puts me in a decidedly awkward position. It looks as if I had refused to accept the office of Secretary in order that my name might be put in nomination for President. Well, I must say that I was not seeking the office of President. I never believed that a man should seek an office; the office should seek the man. If such a compliment had been paid to me in the regular form at this time I would have accepted it, but under no other conditions. I therefore withdraw my name. I do not wish to go into any contest whatever. Both names—in fact you have a superfluity of names—Mr. Rosch, I never have had the pleasure of meeting. Mr. Holloway I have, most favorably. And I decline to go into any contest of this kind.

The President: Mr. Parkinson's withdrawal is accepted. I know how he feels.

Mr. Medlar moved that the nominations for President be closed. Mr. Smiley seconded the motion. The motion was carried.

Joseph Lively, E. Goldensky, Mr. Wingun, Mr. Holman, Mr. Medlar, and Mr. Brown were appointed tellers.

After the ballot was taken Prof. A. H. Griffith was called upon to talk while the tellers were counting the votes.

MR. PRESIDENT: You said that I should fill in the time while the tellers were counting the votes. It is a nice thing to be one who can fill in the time sometimes, even if he only rattles around in a box something to interest the people. The thing that comes uppermost in my mind at the present time is the delightful time you are going to have in Boston next year. I assure you that the New England people will not only take the most splendid care of you, but you will find around Boston so much of interest that you will want to linger there all your life. And the hall in which they are giving their conventions is so splendidly adapted to all the work, such magnificent rooms for exhibition purposes, for demonstrations of all kinds, and the auditorium, that you people will every one make the great mistake of your lives if you are not there next year. I know it is a long way. It is a long trip, but where can you go in this country and not have a long trip? It is not like the Irishman who said to me one time in Dublin: "Do you know O'Donohue who lives in New York?" "No, I do not know O'Donohue." He said: "He has lived there about eight years." "I said that might be, but I live almost a thousand miles the other side of New York." "And land all the way?" "Yes," and I said, "two thousand miles on the other side." He got up and walked away and told the people that the biggest liar that ever crossed the Atlantic was up-stairs. I know an Englishman who was sent over from England as a commissioner to the World's Fair at Chicago who brought a rifle to shoot elephants in Chicago. But there is no place that you can locate a convention in this country that you do not have to go a long way; somebody will. It will be right by somebody's door but the great mass of the people will have to go a long way, a long distance. That is the way you become acquainted with the people, with the hard work that is being done. This morning you heard Professor Bement criticise the pictures. I have often criticised the pictures for you. Todd is always criticising the pictures; so you have two or three different ideas and views about all those things. The idea is this about criticising pictures, and it all comes down to one simple principle. See the very best that there is; try to get at the thing that the man was trying to express, and when you have mastered that do it your own way. Every boy and girl who goes to school is given a copy to learn to write from. They learn to form the letters and then they develop a handwriting of their own that is individual, that is characteristic. Now you people get out here and you look at all of these people, each Tom, Dick and Harry and you like some of them, you like all of them, and you will be like an old fellow that went out hunting with his boy. The old man had the palsy, so he let the boy shoot. The boy shot at a squirrel and missed it. The old man said, "Let me take that gun," and he took the gun and held it up and went all round this way, but when he shot he brought down the squirrel. The boy said: "No wonder. Good God, you shot all over the tree." That is the way you people get here and you shoot all over the territory. You do not fasten yourself down to one single solitary idea. One man has told you that this one

trims too much, another one did not trim enough, another says cut oval, another says square, another fellow circle, and another fellow says work angles and curves. You go home with your head full of a lot of stuff you will never get. What you need to do is to get what you want here and follow that man's idea, follow what is back of that, and then develop your own intelligence. There is a man over here on the Pike; when he touches the clay it simply forms itself into something beautiful; you put it up to your cheek, it is like the touch of a baby's hand. He is wonderful, but he is one-sided; he is a fellow who is not rightly balanced because he does not know how to make money. And he feels it.

But he has more original ideas in one minute than most men have in four hours.

Now go into that gallery each one of you who have not done so and lay down some one man's principle and only mind this and keep this in view, that you cannot use white, you cannot use black, none of you. Then you must be sparing and let light in at that time that will hold your centre of attraction in all pictures. Hold that centre if you like it, the thing that attracts you, and do not scatter and get outside of the canvas. Now, that is the only principle there is; that is about the only there is. Make them in red, make them in white, make them in blue, straight up and down, angular, round, oval, curved, anything you want to do. The greatest thing among our modern pictures is the Angelus in which Jean François Millet went beyond every rule of composition. He put a straight man, a straight woman, and a wheelbarrow in between them, making a square in there. And then he added a straight wall behind the man, drew straight lines on the picture, and the French government was willing to pay eighteen thousand dollars for the picture, eighteen by twenty inches, to put in a room as one of the achievements of modern creation. But that man could violate every rule of composition like a God. He knew what he was doing. Millet could paint a figure until it looked like an angel. Now you people violate all the rules of composition you want to. Violate every rule you know how, but do it with intelligence. And come back here next year with better pictures, with more sense to them, with more intelligence in them, showing people that you can make pictures that talk. You can do it. I see one of the pictures up there. I know what the old man was. I know he was a miser. His lips and his nose come together, and his fingers show it. He would hang on to a nickel until it was across the counter and into the other man's till. He shows it in every line of his face. I would see another fellow that was a dude. He had nothing to think of besides good clothes. Now there are a lot of men that dress consistently and magnificently and they are not dudes. There are other people who are simply dudes, that is all. You can pick out each man's character. God made your body, and the Germans say we make our own faces. And we do. Look at the man that is always in a good humor and sees everything beautiful, and the lines in his face always go this way. And the fellow that sees everything blue, the lines go this way. Now get that man out of himself and show the soul, the individuality of the person. And then do it in the most artistic way you possibly can, but never make two things alike. I mean two sets of photographs. Be individual so that when a man sees your picture he knows you made it, and then make it next time in a new light. Hollinger of New York only makes one picture, and then if you want another one you have to sit again. That never disappoints the people about the prints being ready. He says your print will be ready to-morrow. And so it is, but it is only one. You pay for one and you get it. He follows up the old daguerreotype ideas and he makes money. If you would go into his studio you could buy the whole thing, outside of the camera, for fifty dollars. There is absolutely nothing in the studio, plain background used in making pictures. He makes pictures that talk. I think I have talked long enough.

The tellers reported the result of the ballots cast. Mr. George G. Holloway, having a majority, was declared elected President.

Mr. Holloway:

MR. PRESIDENT, LADIES AND GENTLEMEN: I am not insensible to the honor which you have conferred upon me by making me your standard bearer for 1905. I am especially grateful for various reasons. One of which is that I hail from a little town, and it has been generally understood the impression has gone forth that a man from a little town was not big enough, was not broad enough to guide the destinies of the National Association to a successful fruition. And for that reason I am more than grateful, for I will have an opportunity to disprove that assertion. Again, I am grateful for this honor because it has shown to me who my loyal friends are, and to those loyal friends I want to say that you have my thanks, and it comes from the bottom of my heart. I am especially grateful because next year the grand old Photographers' Association of America will have been in existence twenty-five years, just one-quarter of a century, and the next convention should be and will be known as the quarter-centennial convention of the P. A. of A. Opportunities will be presented next year that will possibly not come again within the lifetime of many of us present. The next memorable year will be when it is the semi-centennial convention, and many of us will have been past and gone. We will have the hearty co-operation next year of every manufacturer and every dealer in the country, as well as the hearty co-operation of every progressive photographer. I have never made you, my friends, any promises in the past because I have relied largely upon my work speaking for itself. How well that has been done I leave it entirely with you and the verdict rests in your hands. But after having served you as I think faithfully for two years I am going to make you now one promise and that one promise will cover it all. Next year I am going to do for you my level best, and when I say that, I have said all that any one can say. Having made that promise to you I want to exact from you an equal promise that each and everyone of you within the sound of my voice will do your best next year; and when you have done your best, you will have done all that any man or woman on the face of God's green earth can do. Do your best in the quarter-centennial convention of the P. A. of A. and that convention will go down in history such as we never have had before. I could talk to you my friends, for my heart is overflowing with gratitude, but time is precious, and once more thanking you, each and every one, for your hearty co-operation you have shown me, I thank you.

The President: The next is the election of a First Vice-President. We have the regular nominee, C. J. Van Devanter.

Mr. Smiley moved that the nomination be closed and that the Secretary be instructed to cast the entire vote for Mr. Van Devanter. Mr. Teuber seconded the motion. The motion was carried.

The Secretary cast the vote of the convention for C. J. Van Devanter for First Vice-President.

Mr. Van Devanter: Mr. President, and my friends, I thank you for the compliment. I say that with deep feeling, because I feel that it is an endorsement of my efforts in the past on the executive board. While I have only played second fiddle, I leave it to your judgment as to how I can play First Vice-President. I thank you kindly.

The President: We will pass to the selection of a Second Vice-President. Mr. A. T. Proctor, of West Virginia, is the nominee.

Mr. Holliday moved that the nominations be closed and Mr. Teuber seconded the motion. The motion carried.

Mr. Barrows moved that the Secretary cast the entire vote of the convention for Mr. Proctor. Mr. Teuber seconded the motion and the motion carried.

The Secretary cast the entire vote for A. T. Proctor for Second Vice-President.

The President: Now the next is the election of a Secretary. Mr. N. B. Parkinson, of Boston, Mass., is the nominee.

Mr. Parkinson: To make it regular, I believe what I said before will not be recognized, but all heard what I have to say. It is not necessary for me to say any more than that I am sincere in declining to stand for this nomination.

Mr. Medlar: I take great pleasure in placing in nomination Mr. J. N. Bandtel, of Wisconsin, as Secretary.

Mr. Smiley: I know so well that the success of the splendid association of our sister State has been due largely to the efforts and ability of Mr. Bandtel, that it is with the greatest of pleasure that I rise to second this nomination.

Mr. Lively moved that nominations be closed. Mr. Holliday seconded the motion. The motion carried.

Mr. Lively moved that the Secretary cast the entire vote of the convention for Mr. Bandtel. Mr. Potter seconded and the motion carried. The Secretary cast the vote for Mr. Bandtel.

Mr. Bandtel: Mr. President and friends, I know that it is rather late and we are all anxious to get out of here, and I am not a very good public speaker anyway, so I will not have very much to say. The matter of which Mr. Holloway and the other gentlemen who have spoken to you for the convention to be held in Boston meets entirely with my approval. And I would like to say over again, if I could possibly put it better, the same things they have said to you before. I thank you very kindly for the honor, and if work shall count I will promise you that we will have a good convention in Boston next year, because I am perfectly willing to work. I thank you.

The President: That completes the election of officers. We will proceed with the presentation of life membership to the past presidents. And as I call the names I hope they will kindly take their places here.

John Carbutt, Joshua Smith, J. E. Beebe, J. H. Kent, James Landy, W. H. Potter, G. Cramer, E. Decker, H. McMichael, George H. Hastings, W. G. Entrekin, Frank A. Place, Adam Heinberger, John S. Schneider, R. P. Bellsmith, C. M. Hayes, J. Will Kelmer, F. W. Guerin, S. L. Stein, E. B. Core, George M. Edmondson, and J. George Nussbaumer. Professor A. H. Griffith will make the presentation.

Prof. Griffith spoke as follows:

Presentation of Life Memberships to the Past Presidents of the Association.

MR. PRESIDENT, LADIES AND GENTLEMEN: There are moments in our lives that we like to live over and over, that we should like to live over and over again. After we are dead and gone, and sometimes forgotten, there are monuments erected to us; and even before we are carried to the tomb flowers are strewn over our coffin, and many kind words are said of us and of our deeds; things that perhaps we did on the spur of the moment, never expecting to hear from them again are recalled with tears of sympathy. But all that counts for nothing. It is the recognition that we receive in our lifetime that counts. I would far rather receive a rose in my lifetime from some sympathetic friend than a whole cartload of flowers when I have passed away from this world. So to-day it is to me one of the most delightful experiences, one of the most delightful occasions when I have been asked to give to the men who are the pioneers, who are the builders-up, who are the men that started this grand organization

on its feet and year after year put their shoulders to the wheel and made it what it is to-day. Those men are the forefront of the battle. They did their work well and honestly, and are now to receive in part some slight recognition for all of these years of work. Two have passed to the great beyond. They have received their rewards perhaps somewhere. We hope so. And each one of you in the ordinary course of nature must pass on to that great beyond. We turn back to those friends who were the friends of our youth, and our thoughts linger over them and over their work; the little simple acts of their everyday life become to us hallowed by the most endearing and enduring thoughts. It is not the value of the thing we receive. It is the spirit that goes with it. I am sure that when the gentlemen and ladies composing this Association last year at Indianapolis passed this resolution, that it only in the slightest way carried with it all of the kindness and the cheering and the endearing thoughts that they would have liked to have conveyed with it. I now take the most extreme pleausure in presenting to each one of you this life membership in the Association of Photographers of America with all the honor which belongs with it. And I am sure that could I lay on it gold dollars that would cover every inch of space it would not bear to each one of you any more wealth, any more value than it carries to you to-day. These are honorary and president life memberships.

"Papa" Cramer, you are a dear, grand, good old friend. Let me give you the first one.

It was my good fortune to have been born in Indiana, the Hoosier State. It was still better fortune for me to have gone to Ohio to live at one time for quite a while, and I am a Michigan boy for the cause of hay fever. I left Ohio (perhaps for Ohio's good), but they have got too much ragweed down there for me. They do not have so much of that up in Michigan. But there are splendid, great, glorious, good people in Ohio. Some of them I have left behind, I am sorry to say, but they have kept up with the procession, and among them is John Schneider. Mr. Schneider and I have quarrelled over pictures; we have disagreed for ten years. I have pulled the photographers up on one side of the hill and they have gone over on the other and fallen down again, and I have reached over and pulled them back trying to put them in the way. Mr. Schneider is one of them. We do not agree. But we do agree on this, it belongs to you.

Mr. Bellsmith, so long connected with the photographer's interests of Cincinnati, another Ohioan, and I cannot speak of him without thinking of his brother, great, glorious, old Canadian friend. I like the British very well, but they are all bullheads. But this man is not. Mr. Bellsmith of Canada is a great, glorious, big fellow.

I never knew a big person in my life that was not good-humored. And it is a blessed good thing, because there is so much of them that if they ever got mad all over, they would never get over it. I give this to you, Mr. Bellsmith. I cannot tell you how much of my own sympathy, how much of my own heart and soul goes with it.

Mr. Stein comes from up in the Lake region, up about Milwaukee; his name would indicate that. But I assure you that Mr. Stein is one of the splendid men in the photographic profession. A few years ago it was my privilege to present Mr. Stein from the photographers a magnificent bit of silver. It was filled full of good thoughts and good cheer and good words from the friends who contributed it. But I assure you that he will not value nor does not value that more than he values this to-day. Mr. Stein, as a good old friend whom I hope often to see, I present you the honorary membership.

As a boy I remember walking along the streets of Dayton, Ohio, and seeing for the first time a painting that attracted my attention. How old I was I do not remember, but not very old. I lingered by that door looking in at that painting, that stood on a wall on the inside, until an old gentleman stepped to the door and said: "Would you care to come in?" I was surprised, because I was nothing but a boy. I took off my hat and stepped in and stood in silent admiration before the painting. He asked if I admired pictures, and I told him I did. And he said: "Let me take you into the studio." That was the first artists' studio I was ever in in my life. It was Mr. Edmondson's father's studio. This recalls to me the days of my boyhood, and to Mr. Edmondson goes all my heartfelt feelings because of the love and admiration I bore his father. Ladies and gentlemen, I hope that this has been as pleasant to you as it has been to me, and I assure you that all of these occasions will remain in my heart always the most magnificent hours of my lifetime. I thank you.

Response to Presentation of Life Memberships. By G. Cramer.

MR. PRESIDENT, OFFICERS, LADIES AND GENTLEMEN AND PHOTOGRAPHERS OF AMERICA, AND PROFESSOR GRIFFITH IN PARTICULAR: These friends and colleagues of mine who have been honored likewise have requested me to speak collectively for all of them. So I will try to combine their thoughts with mine and to express to you the thankfulness which overflows our hearts at the present moment, and how highly we appreciate this token of friendship, a life membership in the Association, which now has been bestowed upon us. For myself I shall rank it equally as high as the beautiful charm which was presented to me at the last St. Louis Convention, which I forever bear on my breast with the beautiful inscription thereon, "Papa's Boys." With it I would not part as long as I live, because it expresses the same feeling. So did this express a feeling of gratitude in the Association toward your faithful servants. We have helped to build up this National Association of the Photographers' Association of America, which in my estimation ought to be perpetuated forever. It should never fall to pieces or be left to go asunder. There is no occasion like this where all the shining lights and the less shining lights of our profession are assembled together from the north and the south, from the east and the west of this our glorious country. Wherever do we find them together as we do here? And this we cannot appreciate too highly. With all deference to the State Conventions, I shall keep up the National Conventions by all means. Combine your efforts; show the works of the land, not only from the one State, and shake hands together; get acquainted. As I had the pleasure at this convention of meeting my friends from Germany, from England, also from Japan and China, each greeted me in their language. Here is the chance that we have here at this great World's Fair to improve our ideas, to draw from the infinite, to draw from the great intelligence that is here evidenced in this wonderful World's Fair with the grandest exhibitions that the world ever saw, with all nations represented, with the magnificent buildings that each State in this nation and each nation in the world has seen fit to put up here to have a good representation and to show their good-will and their friendship toward the United States. This, my

friends, is not a local affair at St. Louis. This is an affair of the United States, a national affair; and for that reason ought to be supported by the whole nation, and millions ought to come here before this wonder that we have now an occasion to witness and to see is torn to pieces again. I hope that when this meeting adjourns we will bear rich food and each and every one of you have that which is good woven in your ideas and your thoughts. I shall make now a World's Fair plate with all improvements combined in it. And I want you all to go home and make better pictures than ever. Make World's Fair pictures. Tell your friends you have seen so much here and gathered so many new ideas that you can give them something better than ever before. Now I will not detain you any longer as the time for dinner is drawing close by, and I will now again say in the name of my friends (they have authorized me to say it so as not to occupy too much time) and in my name (cries of "Let them stand up with you, Papa")—stand up boys—that we all thank you, and long live the Photographic Association of America for evermore, amen.

I forgot one thing, that I wanted to shake hands with our worthy president for his participation in this beautiful ceremony, and for the splendid way in which he conducted this meeting.

Mr. Holden:

MR. PRESIDENT: I think that in this room there are many people who at this hour are filled with something that they cannot give expression to. They are filled with thoughts that should, and do, make them feel glad and better, simply because this year at this convention we have done homage to every man who has done honest work. We have paid honor to those who served us in the past. And anyone of us who cannot feel the gratefulness of having had the pleasure of being present here must indeed be miserable. I have in mind things which are to come, things which are to be done. We have been working year after year in the interest of our beloved art; we are working to-day harder than we ever worked before, simply because we have come closer together with an intense desire to carry out our hopes and our ambitions. We have to-day men better skilled, men better prepared to put our Association before the world than it ever was before. We have a home perhaps in which we can place the best of our work; we have a place to which we can go and to which we can send from time to time those who need instruction in every branch of our art in which he may be deficient. Let us as men, let us as photographers possess every one of those ideals that have been set forth to-day, and let us preserve unto eternity the grand good things we have to-day and the grand good things that are to come. Let us do that that others may be inspired to work harder and harder for the success of photography.

Adjournment.

Address by F. M. Steadman.

Principles of Lighting and Scientific Development.

(Revised by the speaker.)

MR. PRESIDENT, LADIES AND GENTLEMEN: At the last convention at Indianapolis I endeavored to make a talk and I felt that I failed because my remarks were very disconnected. I made up my mind at that time that if I ever had the privilege of coming again before the Association I would arrange in a precise manner exactly what I wished to say. But I find it has been impossible to do it because I cannot think exactly what I want to say in the form I want to say it until I come before you. Now those who remember me and remember my presence at the Indianapolis and Boston Conventions last year will remember that I demonstrated a method of home window portraiture, and I think most of you who do know me think I am yet an advocate of home portraiture. I am, but I wish to say that I wish to introduce myself to you in a new light, because I want to be known in my work as one who stands for education in photography, and for education, not in a general way, but in a way which I shall try to show you plainly. I was very glad to hear the previous speaker say that in art, to reach it or to acquire it was a problem of elimination. I think that is the way we progress in all education, because we feel that we know so little, and the mind travels very slowly. Now in regard to composition, I am going to formulate a plan by which we may grow in knowledge in photography. That plan means we shall eliminate little by little all things we do not need. I saw a picture one time a very ordinary photographer had made. He wanted me to burnish some of his pictures, and one picture was a family group; I saw in the picture the difficulty he had met. I believe when I have stated it we will all realize that we have been confronted with the same difficulty. This man had to handle a family group of seven people, the father, mother and five children. He arranged, or tried—I could see that he tried to compose the group as we all do. He succeeded in forming the group in which he disposed of four or five pretty well. He had, for instance, the father sitting down and the mother here, and one child down here, all scattered around very nicely, but he had only succeeded in disposing of four or five of the group. Then he did not know what to do with the rest. He had two more boys—did you ever come to that point? Well, now I think that every one of us must appreciate the practicability of that point. Now this man was not able to group those other two and include them in the composition. What did he do? He simply stood the two boys in a row at one side of the group. Another thing about this picture, as long as we are speaking about composition. The man, an agriculturist with very large hands, held in his lap a very small baby with a very large dress, and he sat with his hands touching each other in front of and grasping the baby. The dress was spread out with the greatest of care and it was long enough to reach just over the man's shoes. The composition was really the funniest thing I ever saw in my life, and I would give a great deal of money if I had one to show you; it was a comical thing. I want to illustrate with these diagrams we have put on here the way people in the beginning of the world went about composing. (Referring to drawings on blackboard.) It has been said that the mind of the child progresses in a way similar to the development of ideas in the world through the ages. I will tell you why. For the same reason that this organism is more permanent than any of us in the organism; the organism lives. Education is a quality of the mind that lives from generation to generation and grows just like the sprout I put in the ground, or the seed. To what stage shall it attain? We cannot know, for we must drop out of the race. In photography we know that a generation has carried us from the stereotyped pose to the beautiful picture that we make to-day.

I forgot to announce my subject. I wish in a simple manner to illustrate why we need to know more as photographers. Now I want any gentleman here, any one of you, this gentleman right here, if you please, to guess how long this book is (holding it up.) Please make a guess. (Guesses are made: twelve, eighteen, fourteen, sixteen, thirteen, and fifteen inches.) Now here is the man who guessed the least; the gentleman here guessed twelve inches and Mr. Cramer guessed eighteen inches. Now answer me another question. You are all interested. What is the intensity of light of my hand? (Answers of fifteen inches, eighteen inches.) Some one else. Have you the intensity? Give me it. Can you? What is the intensity of the light on my hand? What is the matter? (Some one replied, "We have no scale.") You have no scale. We photograph the hand by making its image rest for a moment against a sensitive film. If we can say in simple numbers what the intensity of the hand is we might have the key to its activity. It is illogical and unnecessary to be without this simple unit and scale of values. I want to say there is a movement on hand to give people diplomas for excellence in doing photography. Now I would like to see you get a diploma in a college as engineer without having had any unit of the inch or pounds or ounces or any kind of unit of such engineering. Could you do it? If we give diplomas to photographers it should be for *knowledge* and not for excellence, which is simply a result of experience. The method of tinting papers in the light and noting the time required is an old one, but I have gone beyond that and have arranged that the whole matter of light intensity, diaphragms and time units may work together by simple multiplication and division just as we calculate other quantities. With my system I adopt the "first appearance time" of the tint as the standard amount of work for the light to do and a piece of P. O. P. (of the speed of solio) held at my hand and turned facing the light source, and tinted through a small hole in some opaque cover, would, by the time required to bring the spot to the first appearance tint, indicate in seconds of time the actual intensity *at* the hand (not *of* the hand, as that would depend upon its actinic factor). My system takes the intensity *at* the subject as measured by the standard paper, and the color, etc., *of* the subject itself is governed by giving different subjects different *speed* diaphragms as required. I wish to illustrate plainly that in our work we need to think of the light intensity by simple numbers. You have a panel out of a door that you want put in, and the carpenter comes to your house and you ask him, "Where is your rule? How are you going to do it without a rule?" "I do not need any measure; I have been a carpenter for fifteen years," he says, "and for the last five years I have not had to use any rule, I have gotten so I can guess distances so well I do not need anything of the kind You insult me to think I should bring a rule or a square to panel a door." Well, suppose he looks at that hole in the door and then takes his saw and saws off a board the length he thinks it should be. Now what would you do with that carpenter? (Some one cried: "Fire him.") Sure. Suppose he wanted to get a job, and he goes to a boss carpenter, and says, "I am an expert carpenter; I can guess distances so well I do not have to use any rule or any square." Well, that is about as far as he would get. Suppose that a carpenter would be sent out and given the job of sawing off one hundred boards each ten feet long, and that he would cut off those hundred boards without any rule, and when he got the hundred boards sawed off he would stand them all up together and look at them, what kind of a job would he have? The same facts are photographically true. It is up to us to make a rule with which we can measure the intensity of light and express it in actual time; then we can study photography, we can practice photography successfully, and we cannot do it until we have something of that kind. How many of you gentlemen here in the room who practice photography have not made a failure in the last year? Will you please stand up, you who have not made a single failure in exposure, either over- or under-exposure in the last year? Please stand up. Here is Mr. Barrows, who was standing up now getting down. Well, if any of you gentlemen who were standing up have not made a failure in the last year, please raise your hands. Well, now, if there was a convention of carpenters (laughter)—I want to do this thing in a way that is so practical that you cannot help but see it. That is the reason I am making these comparisons. Now, if this was a convention of carpenters, and I would stand up before the audience of men and say, "How many of you have been given a job to saw off a board ten feet long and did not succeed, how many of you could not do it?" Well, they would get me out of the convention hall in a minute because I would not belong there, simply because it is utterly ridiculous to consider such a condition. (Holding up a glass of water.) How much water have I got in there? Now, do you not see? The question is enough, because you see yourself how absurd it is. Here is a graduate with the ounces marked. If you have a solution to mix up, would you read the formula and get insulted because it told you how much of certain things you should use? Now in regard to light. Here is one way that the light intensity is to-day being expressed. "Cloudy bright" is one kind of intensity; "cloudy dull" is another kind of intensity. Now in regard to the interiors of rooms "two windows with white walls" is another kind of intensity; "one window with dark walls" is another kind of intensity. Is that the intelligence we have to display in this present century? Now why cannot we think of that in numbers? Why cannot we say twice two are four in photography just as we do in carpentering or anything else? Would that hurt the artistic to measure a thing when you have the means of measuring? Do you think an architect compromises his ability as an architect because he had to study inches and feet? Do you think a man is handicapped by knowing inches and feet? Electricity has its units; all things have units. We take a thermometer and hold it up here and we measure the temperature of the room; it is hot enough now. You can take a piece of paper and hold it in a certain place and you register the intensity of light. Why do you not do it? Do you not want to do it? As intelligent people we ought to want to do it.

Mr. Cramer, interrupting: "Tell us how."

Well, I will tell you how. That is just what I am here for. I cannot on account of time make the demonstration I wanted to. I wanted to show you how anyone could, how we can, indicate the intensity of light, and how we can give the plate-makers—and I am glad that Mr. Cramer is here to listen to me—how we can give the plate-makers a single diagram with which to indicate the speed of any plate. This part of my scheme is already used by Mr. Wynne, and I give him full credit, although I have never seen one of his meters and did not know of it at the time I was working out the same plan. His and all other plans, however, were made for the purpose (honorable, of course) of selling meters. It would be impossible for the world to accept a certain expensive meter as a

constant, as it would simply be favoritism. My method eliminates the necessity of a meter, as a small strip of any standard P. O. P. behind a hole cut in any thin note-book cover will take the measure of the light's intensity. Commercialism is a good thing, but in education we cannot come down or stoop down to commercialism; we must be above it. Now I am going to speak of solio paper. I do not want you to call me a commercialist and say I am prejudiced in regard to the manufacturers of solio paper. If someone in Europe gives us a formula we find possibly the metric system employed. Now the metric system is one system of measuring and the ounce is another. The fact of having two kinds of measures is confusing, it is unscientific, and there is accordingly an attempt along many lines to unify in a permanent and worldwide manner the different units that express values in the world. It is a worthy cause; we could do it. The reason, then, that I give especial preference to solio in my system is that the whole world may have a convenient and easily obtainable measure, since it so happens that there is no other paper made that can be bought in practically every country in the world. It is for a worldwide unit, therefore, and not for commercial reasons that I recommend solio to be used as the measure. The value of being able to speak and write and read about finding the strength of light and have every one all over the world understand what we mean, I believe, is worth a great deal to us. Now to illustrate practically. (Holding up a piece of solio paper to which he constantly refers.) Let me measure the light on this gentleman's face, and you will notice that in taking the intensity of light there is used a method of counting time. Placing the strip behind the hole in the book cover, holding it at the position of the face and turning it toward the light source I count: Naught, one-half and one;, one-half and two; one-half and three, etc., up to four seconds. On raising the cover no tint is visible. I give four more and can just plainly see the tint. The strength of the light on Mr. Holden's face is, therefore, eight seconds. Now suppose that I should photograph Mr. Holden and make an exposure with each different diaphragm in the lens—from U. S. No. 1 (*f*/4) to the smaller ones—and should each time give exactly eight seconds (the light's intensity) as the exposure Now if we should develop this plate in a normal developer at a normal temperature and for a normal length of time, could we not see which exposure was correct? (Answers: "Certainly.") There would be a great latitude, probably of 400 to 800 per cent., and many of the exposures could be utilized, but we could select one near the maximum size of diaphragm beyond which the exposure or effect should not pass, and that diaphragm printed on the boxes of that particular plate would indicate its speed. A plate so marked we could expose correctly, although we had never heard of it or used it before. On photographing a person of average complexion we would know that the speed of the light, in seconds of time, is the exposure corresponding to that ascertained diaphragm, which for the modern fast plate is U. S. 16. If No. 8 were used the exposure would be one-half of the light intensity, as 8 is one-half of 16, etc. Now if in photographing such a person the speed diaphragm is No. 16, the strength of the light being the exposure, what diaphragm could be used, with the same time of exposure, in taking a person of very light complexion. (Answer: "A smaller one.") Certainly. The next smaller one would give the right effect. In this manner the diaphragm which, in using any certain plate or film, is correct for the normal subject (average complexion), is the speed diaphragm to be marked on the outside of the box of those plates in the factory; and on a small slip on the inside of the box may be placed a list of logically classified subjects in nature with the speed diaphragm of each noted opposite to it. In this way the plan is made inexpensive and positively accurate, as the speed of the light, as measured, is the exposure which is correct for the speed diaphragm of the subject that is to be photographed. The plate-makers can thus provide a way which will allow perfect accuracy in using each of their products and without any cost to the users for a meter. Really, I think the time has come when we ought to be more intelligent; we ought to be ready to use ordinary mathematics and ordinary rules in our work in photography, so that we may have a basis on which to work. I thank you.

Question by some photographer: I wish to know whether or not the time you gave there you mean by the tint—that the paper is beginning to tint, just so that you can see the tint?

Mr. Steadman: Yes, sir. I hold a copyright on a meter which includes this subject table, but am ready to give this list free to the world should the plan be found acceptable.

I would be pleased to have a committee appointed to meet with me to-night and listen to an explanation of the method so that a report may be presented to you to-morrow for acceptance or rejection as you may find advisable.

In Mexico I have worked two whole days, and I find the speed of the light out of doors, when the sun is straight up in the heavens, is one-eighth second, and it has to get down toward the horizon two-thirds of the distance before it gets to be a quarter-second, that is, thirty degrees of the horizon. The strong exterior light intensities are practicably, therefore to measure, as a quarter-second is counted by simply speaking the word "quarter" at good talking speed. The scale to use should increase by doubling, as $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 4, 8, 16, etc. This will be found accurate enough, as there is great latitude in the plates and films.

Question: We are all anxious to know what you would do with those two extra boys in the group?

Mr. Steadman: I would ***think*** or compose in my thought, a larger group, so as to include them in the plan, just as we should begin to ***think*** larger truths in photography.

Fifth Day—Saturday.

The convention was called to order by the President at 9.30 A.M.

Reading of communications by the Secretary (not recorded).

Mr. Holden:

Mr. President, Ladies and Gentlemen: The time has come to say good-bye until another time. I trust that the many things that have taken place during this convention will be carried away, and that you will be benefited by them. I feel that after a number of years' attendance on conventions I have added something to the stature of myself. I think everyone here looking into the matter will feel that they have grown also. We need to work. Man's happiness is his work, and work brings a great deal more pleasure than seeking pleasure where you are not working. Because when at work there is something coming all the time out of your nature, it is making you greater and greater in the community and among

your friends. And when you take into consideration the value of an education and realize what an education is, you will realize that in convention work there is an education. And one wants to come here to give away as much as he can spare. Oftentimes we think that we are fairly well up in a dignified line of being, but when we come to think and look dignity over we do not know when we have it. So what is the use of worrying about dignity? The only way you can dignify yourself is simply to be humble. As a parting word to you let me say good-bye and be happy and may we next year meet in greater numbers, and feel that we have made better progress toward the ideals we are seeking, and bring our profession all together on an equal footing with every other science of the world.

President Reeves: I will now introduce to you Mr. M. M. Waide, of New York City, who will talk to you about "What One Man Can Do."

MR. PRESIDENT AND MEMBERS OF THE ASSOCIATION: In talking with a gentleman this morning he said: "Mr. Waide, I do not know whether you will have any feeling in regard to being placed at the tail end of the show. But I want to tell you the old saying that the best things always come at the last." Well, I took that and thanked him for it, but I will leave it to you to judge whether it is worth anything. I am not going to tell you I am not a speechmaker; you will find out before I get through; that is superfluous. Although I believe in the "one-man method" in photography, I believe when it comes to talking before an assemblage it is a very good plan to employ help to get out of it. I started to write some sort of a paper to present to you in a quicker way and more methodical way some ideas I had developed and used, but after I got it partially prepared I threw it away. I thought the best way would be to stand up here and talk to you as I would in my studio, a little heart to heart talk, and throw away the rules of rhetoric.

I suppose you know what I mean by the "one-man method" system. I have devoted nine years to it and in that time I have not made pictures by daylight. For twenty-two years I have been making photographs. I am going to divide my talk into five parts. They will each one be rather short. Of course I can only touch the parts of interest that come under this heading. First is the advantage of system in the photograph business. Second the successful use of artificial light for developing purposes, commonly called gaslight, carbon and platinum, which I claim, and still believe more than ever, are to be a coming thing for photographs. The third is the elimination of very much of the retouching, in fact almost all of it. That ought to interest you. I am doing it and others are doing it. The fourth is the avoidance of resittings, that is the bane of a photographer's life—all those are the banes. The fifth I call it a lever for better prices and increased income. Now take the first, the advantage of system. Of course I can only talk for a few minutes on these things that I call advantages by working with system in the photographic business. There is an old saying that "System will move the world." And it will move a world in the photographic business of work. Nine years ago I made up my mind, when I was in Quincy, Illinois, and had eight or nine people employed, to let them all go. I was sorry for them, of course. But they had a chance to develop a system too if they wanted to. And when I started on the scheme I had a great deal of trouble, naturally, and came very nearly several times giving it up. But to-day I find that I am doing four men's work with ease. I used to, when I commenced, work nights and Sundays and holidays and all the time, it seemed to me, and everything did not seem to get along. I am not now doing that at all. I have all those times to myself. I am doing more work every year, better work, more uniform. I am getting better prices all the time and am having more time to myself; even time to do a little writing of a little booklet and other little things. I simply mention that to show you what one man can do, that there is only one way, and that is system. It has got to be and is developed into a system like a little machine, of two cog wheels, one cog fitting into and dovetailing into the other; one step following the other, and the preceding step managed so as to save time in the next step, and so on, gradually dovetailing all together, and drawing down in point of time, saving enough that actually with nine years' endeavor I am to-day doing easily four men's work. I could not hire four men that could turn out the work I am doing, and I am at the same time increasing my work, and increasing my price and am getting better work. In speaking of system I cannot tell you altogether what I mean, but I can mention one or two things. If you have dusty negatives you have got to take the time to get rid of what you should have corrected in advance. In the retouching of your prints and taking out the spotting. If you do not get the right kind of negative exactly for the paper you are going to use you have got to take time as well as skill in correcting that and getting around it. So I have looked in advance for what I might expect in the way of difficulties and overcome them in advance by developing this system, one step dovetailing and developing into another. By the system I have to have everything in its place. In the dark room I do everything but the mounting of the pictures and the actual taking of the plate. I have it thoroughly ventilated and I work in there. I do all of my printing inside, retouching —everything by artificial light but the making of the negatives. I have been thinking about doing that, but I have not quite got to the point of doing it. Now in speaking of system before I leave it, I cannot go on and tell you the advantages, there are so many of them. You must all of you realize that any man in business who has a certain established business is going to be able to get at his work in quicker time, and he will do it just as well, even better.

Before I go on to develop plates, I just want to mention a little incident which is rather comical, where a person had a wrong conception of my idea of the one-man method. First, before I tell you that, I would like to state what my idea of the one man-method is. It is simply this: that the painter, the sculptor, the physician, the dentist and many other men who dabble or work in the arts and sciences realize that there is only one way to make a successful product of their business, whatever it may be, a success of what they are attempting to do, and that is that the man who has the ideal, the man who has the brain, or the man in whom that ideal is born must create it with his own hand. There is no man or woman you can employ who can carry out your ideas in science. Secondly, you must understand that the work must be better, if you have the ability. If you have not, then you should not dabble in photography.

This little story is to show you what ideas people have of the "one-man method." There was a German girl who came to get some pictures for her employer, a Fifth Avenue woman. It was

on Saturday afternoon. I have students come in there and I help them out of their difficulties. I was busy at the time she came in, and I asked one of those students to step in and show the pictures to the lady. She wanted to see them, as we always show first before we would wrap them up. I said I would be in in a moment. He went in and showed her the pictures. She said they were all right and she had the money to pay for them I sent another young man, Mr. Peters, a friend of mine in New York, to wrap the pictures up and deliver them, and then to ask her to sit down and I would be in in a moment. Then I came in and handed the pictures to her and got the money. When she went out she said: "Mr. Waide, I like your one-man method. I like it very much. I have heard folks talk about it. I think it is all right. I think it is very nice. I am going to come here to have my picture took. You have one man to meet me, and you have one man to hand me the pictures, and you have one man to take the moneys. I like this one-man method." That is the wrong conception. About nine years ago—I think that is about the time that the Velox papers came out—a man brought it in and said: "How do you like that?" I said, "That is good. What is it? What is it on?" He would not tell me at first He said, "I want you to look at it carefully and see how you like it." He told me it was on a paper printed by artificial light in a very few seconds and developed in a very short time. I said, "How did you get it?" He said, "That is the funny thing. I have been trying to make another. I cannot duplicate that. If I can, I shall discard everything I am using and use it altogether." I thought that was funny. It set me to thinking. I thought if merit was in a thing once, it was there. I thought if it was a little good to get once, when it was gotten every time how much more valuable it would be. Then if every Dick, Tom and Harry could stumble on it, maybe I could learn. I got some paper, worked on it a month. I kept getting better and better results until I got uniform results. When I got ready I gave the help sufficient notice, told them I was going to try a new scheme of photography. Since, I have used only that system, the one-man method. If it was not for that paper I would have to throw the whole thing overboard. When I discharged the help it was hard work, uphill business, but I got to getting better gradually and at the end of the second year I had made enough to go to Europe. I went there to study art, staid nearly six months and travelled from Algiers to Africa and back. All the years I had been in photography I had been able to live and pay the rent and pay the help. That is all I could make at it. I do not think I would ever get rich. It can be done on my system, and photography is coming to-day where men who do that will make money if they have a little ability. The mills will always exist; photography has come gradually into two classes, and I saw it eight or nine years ago, when I started that idea, mills will always exist. The men have something to produce that the mills cannot turn out because the mills cannot produce any man's ideal. The man of ability will produce what the mills cannot, and he will get his pay because the public are being educated up very rapidly to the point of appreciation of what is good or bad in a picture. Thanks to the amateur. A good many photographers do not welcome them, but I want to say right here that nearly three-fourths, nearly four-fourths of the impetus I have had in New York City has come through the amateur and his products. I will tell you, while I am on the subject, that in New York City, for instance, or any other place where there are amateurs who know pretty much what ought to be in a picture, if a friend of theirs wants to have a picture made, this amateur will say to him, if he is thinking of going to the mill photographer that employs help —machinery photographer; does you by machiney or something—"Do not go there. That work varies awfully; you might get a good picture. You will get a good picture of Mr. Waide all the time, because he does it all, the whole portrait, even to the finishing. I cannot make pictures as good as he, but I know enough to tell you you will get a better picture there; he is more sure." The amateur has done a great deal in educating the public generally up to an appreciation of what is good. If you are getting something good, get off something the other man on the street cannot offer, because the man on the street can imitate it. You will get your prices and at the same time please your customers every time. Now, in making successful prints on artificial-light paper, the whole thing is in making the negatives, and it is a negative that cannot be used for anything but artificial-light paper, and when I say artificial development paper you know what I mean—gaslight paper. I do not like that term because it can be used with any light. It may be a soft negative. This kind of a negative, to describe it the best way I can, must be the sort that will take a lady with a grayish-black velvet gown trimmed in white or very light cream, with felt around the collar or on the sleeves, and with a hat —we will say she is wearing a hat of white felt with a pure white plume, large plume. We will consider that the hat comes out four inches over the face, and she is a dark brunette with very brown hair. Now to get a negative to register every bit of detail you can see in the highest lights, the white plume and the deep shadows, and have it in its softness and detail, requires some time. Three things are important—lighting followed up by the timing of the deep shadows and then the use of a developer that will develop and not bring it out too strong, which depends upon the judgment, and the judgment, which is the principal thing. You cannot treat any two cases alike. Here is a print—I say to you that artificial-light paper is the simplest thing on earth to get uniform in a short time when you once understand it. It is like bicycle riding, but when you once master it you wonder why every photographer in the country is not making use of it when he can do it with one-third the time and one-third of the expense, and make better and more uniform work and get better prices. It takes the brain of an operator to do it because he needs judgment, and a man who has not good judgment or is a fairly good operator had better not try it. I think the majority of men can do it. Others have done it, when I have shown them how, very successfully The timing and screening of this negative are the prime factors in its result. When the negative of the woman with the dark gown and the white hat is developed and dry and you look through it, you must be able to see every bit of detail in the black drapery. It will not be timed in a four-second exposure. Yet in the usual exposure the high lights must be so transparent in the highest point of the hat that you can read a newspaper through them. We will say that we pose the subject with the shoulders a little away from the light, using no screen, the skylight wide open. A skylight cuts no figure with me excepting in the fact that it is an aperture for the admission of light. You put glass in it to keep out the storm. It is no difference if it is an old-fashioned skylight or a hole in the roof. You place the subject somewhere near, far enough out under the light to make the perspective. The only skylight I want is my

screen. The screen is placed within a few inches of the subject, as close as you can get without the screen showing in the negative too much. And often it shows in some of my negatives. I can trim it out. The screen I use is about ten feet long and probably six feet high. There is a back sheet, two sets of curtains, one set of white curtains on the side toward the light and a set of black curtains toward the screen. Those little curtains are not over twelve inches square. When I start with the subject I am supposed to have those curtains drawn, at least all of the white ones. I leave the white ones closed. After a while when I am making the pose I draw them. I do not draw them all back because when you get that fixed you want to have a little change of the curtain here and there. But your subject is placed first under the strong light until you get the angle of light that you want. The shadows there were out far enough, much farther than most photographers do, almost beyond the centre of that light. That gives me my perspective, and people say they are very lifelike. After the subject is disposed of, with the shoulders being set in the centre of the room, spacing with this skylight here, we turn the subject a little bit away, turn the face a little bit, putting the camera probably over here, to make a front view of the face. This I call a broad Rembrandt where the light is divided about half and half. I bring this screen up as close as I can to the subject. If the woman has a white waist on we will use the black curtains wherever I want them to tone down the drapery. The principle of lighting I try to get is exactly the same as the principle in drawing; the highest point of the surface, the human face and figure, should have the highest point of light. When I bring the screen up I notice I have more perspective, but the high lights have been toned down. Tone them down as far as you want. I keep screening and screening down the high lights, and I can develop as strong as I want without fear of developing the high lights until they are shaky, they are still transparent enough; I can read a newspaper through them. When I get those high lights screened down to suit me I will notice very likely that the light on the ear on the high-light side of the face is nearly out so far under the light as the shadows on the front of the face. That is not right; I know there should be a general recedence of light from that highest point, there must be diffusion. So I begin to draw my little black curtains. I never look at the glass except to focus. That is a bad habit. Next I notice where the black side is too heavy and I bring my reflector. I want to do everything I can first before I use the reflector. Most of the time I do not use it; the screening is sufficient. I generally have to illuminate the shadows if they look too heavy. I am an advocate of long exposure, and the longer the better. You cannot do it with children; you cannot do it very much with nervous people. You will be surprised to note the people who are nervous who come in, but before I am through with them I get them by long exposure. I have always been a great admirer of daguerreotypes. I do not think there ever has been a picture as beautiful. They did not retouch them. I wondered why they did not have to. I have a very nice business and I attribute it to the expressions I get. I never have had a resitting in New York City for the expression of anybody that was dissatisfied, I believe. I use a headrest where I can. Now you do not like that I know. I do not believe if I took you you would hardly know it, because after I get this lighting I walk back behind the head, and I say: "I am going to use a headrest for just a moment. I am going to take it away." That is a little white story. I talk to the person I just keep their mind working. They forget the headrest during the exposure. I know that they will be still as far as movement is concerned. I do not care if they move their facial expression; that is what I want them to do. The little lines of facial drawing are usually moving a little during the exposure, as the mind of the subject follows your talk and suggestion. By habit I have become accustomed to getting that expression by talking to that person. I keep them until I get the expression I want, then I open the silent exposure and do not let them know when I make the exposure. I rarely take anyone without a good expression in two seconds of either laughing or smiling.

President Reeves: I want to say just a few words. In conclusion, I wish to say that this convention has been a success beyond our highest hopes, considering the grand attraction which we have across the way, considering the difficulty in getting quarters wherein to hold it, and considering everything connected with it. I want to say that it has been a grand success. Never since I have been connected with this Association have the meetings been so harmonious, so enthusiastic; never has the hall been crowded as it has been here, and you have stayed two and a half to three hours at a session. Now I deduce from this that the photographers of the country are awaking to their best interests, they are eager to be educated, they are seeking that which will pass them from one step to another, higher and higher in their profession. We as officers are not inclined to accept this as a tribute to our own efforts, but as evidence of a growing interest in the profession, and as one who has always taken an interest in uplifting our profession, I wish to say that it is most gratifying. I believe that this year steps are introduced which will lead in a short time to the goal of our ambitions. I believe that next year you will find that the Photographers' Association of America will be put upon a new footing, will take a new lease on life, and that every photographer in the universe who has any ambition then will strive to become one of it.

Before going, I wish to thank the many who have contributed their exhibit of pictures; the many in the commercial line of our business who have lent assistance, and the various Vice-Presidents, and the members of the Executive Board, who have stood by us night and day. I say night because we have spent all night more than

once in this work. I thank them, then, from the bottom of my heart, for the support they have given me as President of this Association. I wish to commend them to you as men who are capable, as men who are enthusiastic, as men who have a deep, earnest interest in the business of this Association; commend them to you as worthy of your confidence; and I beg for them, if begging should be necessary, that you lend them the support that you have lent to me. In this way we become one grand, harmonious family. We educate ourselves as we would educate our children; and when we have laid down our work, and are called to take up the life in the land beyond, we can feel that we have accomplished our mission in this world, and that those following us will be benefited by our having lived heretofore. I thank you.

Mr. Parrot: In view of the many difficulties that the Executive Board have encountered in making this convention a success, on account of it being held in the World's Fair city, I think we should be very ungrateful for their services were we to adjourn without voting to them, without extending to them a vote of thanks for the many sacrifices they have made for our welfare and on our behalf. And I now wish to move that we extend to them by a rising vote our thanks for their labor.

A number of locals seconded the motion. Mr. Parrot put the motion to vote, and everybody arose, and the motion was declared carried.

Mr. Bandtel: Next year we are going to hold our convention in Boston, the historical city on the Atlantic. All of us have been wanting to go there at some time of our lives. Next year we are going there for a grand convention, the grandest that was ever held in this country. On behalf of the incoming board of officers I want to extend to you the most cordial invitation to our next convention.

The meeting adjourned to meet in Boston, 1905.

IMPRESSIONS GATHERED AT THE ST. LOUIS CONVENTION OF THE P. A. OF A., 1904.

BY ALFRED HOLDEN.

THE convention of the P. A. of A. of 1904 has gone into the past. What influence its actions will have on the future of photography is no doubt a matter of conjecture; however, many things were enacted and many questions put forward which will have great influence on the future work of the Association. There is no doubt whatever in the opinion of the writer that a closer union of the State Associations with the National may do much for photography. This in the last two or three sessions has been proven. Men imbued with the convention spirit and men who are thoroughly in earnest in that which they do are not actuated by a selfish motive; but are ever willing to sacrifice self for the good of others, and the National Association will do well to listen to them. The men who attend both the National and State Associations are, it must be conceded, thoroughly in earnest and mean well, yet there seems to exist a feeling that they are trying to saddle the State organization upon the National. This is not so. The State Associations in the past have proven their ability to take care of themselves. This can also justly be said of the National. The question is, "Is not the National Association the parent of the State bodies?" Those who know will say "yes." Then why should the same constitution not serve for both? From consensus of opinions gathered at St. Louis, the answer is, "they should." Would it not be well if the National could say when the State Associations should hold their meetings? From the standpoint of economy this would serve a good purpose. The manufacturers and dealers, who, by the way, have in the past always acted in the most generous manner, should be considered. They are to-day compelled to jump across country in a zigzag fashion

and oftimes forced to jump from one extreme point of the compass to another, very often at great expense. Could we not plan a circuit which would be so seasonably arranged as to meet all requirements?

The writer has found that the greater number who attend conventions come with an appetite for knowledge, desirous of acquiring new ideas; but many are disappointed owing to the fact that too much time is consumed in matters which do not educate.

Some plan should be formulated which would so govern the programme that the educational features should supersede all others. Entirely too much time is consumed with questions which could well be settled by the board and the association's proper committees. This would avert many of the entanglements occasioned by useless discussions which take up the time that should be given to education.

The merits of any particular school which claims to teach photography by mail or correspondence should not have consideration, and at no time should they be allowed. We can better use the time in studying the many utilities which are constantly being provided for us, and exhibited, so that we can more intelligently understand their usefulness, and how to apply them for the purpose of improving our output. We should more frequently be permitted to ask the reason WHY. Such opportunities are open to us and the material willingly furnished with intelligent demonstration provided for the purpose of showing how. These should have their proper place in the programme and should be demonstrated before the whole body, and not set away in some corner where by accident you may see it.

The St. Louis Convention can be said to have been a success, and due credit should be given to those who so willingly labored against great odds to make it so. Every one who attended will agree with me, that considering the very many inconveniences surrounding it, the whole affair was well planned and fully taken care of.

Now as to the exhibit of pictures (placed as it was in the most disadvantageous surroundings), it was never better. Here was demonstrated the fact that we are beginning to find ourselves. We are showing more and more the individuality of our natures. We are gathering the inspiration which is helping us along to greater things. Our views are broadening. We are coming more into the full light of day. Many of us are still continuing in the old lines, as it were. Others have gone out of the old and into the new; bound down by no conventionality or rule, but absorbing all that comes before them which inspires, selecting that which is most beautiful, each day providing new thought and each face a new lesson. We are filled with hope that in the near future we shall be better able to realize that to do beautiful things we must have pure thoughts.

We have now arrived at a point where we are beginning to learn, and it should be our duty to see that opportunity is given those who desire to study. We have pictures by photography which are worthy of consideration, and these should be placed where they can be well cared for and at all times be available to those who care to study them. We may constantly add to this collection.

We as photographers have now an opportunity to do this which should not be neglected.

We have at Winona Lake, Indiana, the first substantial testimonial ever offered: The Daguerre Memorial Institute, a building completed. The first dedicated to photography. It is within its walls that the masterpieces can be cared for, and at the same time a museum can be permanently established, wherein a record of events may be kept.

The Summer School idea is no longer a fad, it has become a part of the modern educational system. Great universities offer regular Summer Courses, but the real home of the Summer School is at our Assembly, where, in addition to specific training in specific lines, its students may receive the uplift that comes from contact with those in other lines of work, but who have in mind the same ideal—the betterment of Man.

Why should we not move in this direction? We have done great things; we can yet do greater things if the right spirit is in us. Think it over.

THE NATIONAL CONVENTION.

BY THE EDITOR.

In many respects the Convention recently closed at St. Louis will, we believe, prove the most important and helpful of any in the history of the National Association. This statement and the facts upon which it is based are all the more remarkable when it is remembered that the Twenty-fourth Annual Convention was held in St. Louis during the World's Fair. It was a matter of very general belief, not only among photographers, but among manufacturers, dealers and others interested, that this convention could not hope for even an average of success. The attractions of the great Fair, only a few blocks distant from the Convention Hall, were expected to draw the members irresistibly to itself.

Much to the surprise and gratification of the writer, and certainly to the gratification of the officers, the opposite was the result. Meetings had been planned so that they should occupy only the morning of each convention day, leaving the afternoon and evening free for the pleasure of members, and from the opening of the first session to the close of the last, every meeting was splendidly attended. An amount of enthusiasm and earnest interest was shown in the proceedings that would have done credit to any convention ever held in the history of the Association. Coming as it did at a time when the great Fair city was filled to overflowing, the committee found great difficulty in providing for accommodations at all, and are deserving of the greatest credit for the manner in which they met the difficulty, and for the conveniences they were enabled to offer at the Forest Park University Hotel. It may also be said that members of the Association, realizing the difficulties under which the committee worked, were quick to appreciate the conditions, and to make the best of what was put before them. The attendance was large, comparing favorably in point of numbers with any of the recent conventions of the Association.

The exhibit of pictures was on the whole excellent. In it were to be seen many evidences of increasing strength and individuality in the work of exhibitors, and while there were disappointments to be found on all sides, the general average was good. The exhibit was a very representative one, and had been gathered together through the hard work of the Vice-presidents, and under unusually difficult conditions.

The work for which the Twenty-fourth Annual Convention will go down into history as most important is perhaps, first of all, in the steps taken by the Association to re-incorporate and put the Association upon a footing of dignity, responsibility, and high standing. It will be remembered by those conversant with the history of the Association that papers of incorporation were taken out many years ago, but that through failure to properly follow up the act of incorporation, the corporate powers were lost. President Reeves, however, taking the initiative into his own hands, has made application for incorporation under the laws of the State of Indiana. Three trustees were appointed by the President and a committee named to draft constitution and by-laws. Their action will be looked forward to with the greatest interest by everyone concerned in the advancement of photography. That such an institution as the Photographers' Association of America should be an incorporate body no one can doubt. The moral effect of incorporation with a responsible board of trustees and directors who shall have the interest of the Association at heart, and who shall control its surplus moneys, indicate its general policies, and hold a directing hand over the work of the year, can be nothing but good. With such a backing as this the Executive Board, elected year after year, can do more effective work than under any other method of organization.

Another very important achievement of this convention has been in the establishment of warmer and closer relations between the State Associations and itself. If, under the general plan suggested, a still closer co-operation can be had, and a system of awards be arranged as outlined, we believe it will work to the decided ad-

vantage and dignity of the profession all over the country. It seems to us that some such system as that suggested, under which diplomas will be awarded by the State Association acting in conjunction with the National, will stimulate endeavor and earnest effort in the State Associations, which will be increased materially when the exhibits are placed in the National Convention year by year.

The action of the Convention in ratifying the judgment of the committee appointed last year to investigate the merits of the Winona Lake Assembly is the third important step in its proceedings. By this endorsement, the Association is not, as some feared it might be, pledged to hold its conventions in any one locality, but simply provides itself with facilities for housing its records, exhibits, and matters of value, and connects itself with a movement for the general advancement of photography along higher, more dignified and permanent lines.

The Twenty-fourth Convention has demonstrated, if anything, that photography and photographers have reached a higher plane than ever before of enthusiastic interest, and a realizing sense that photography is a dignified profession.

We earnestly thank the officers of the Twenty-fourth Convention in the name of photography for the untiring effort, for the well-directed effort, for the whole-hearted and self-sacrificing effort they have put forth. We believe the future will demonstrate that their work has been well directed and productive of great good.

NEWS AND NOTES.

OBITUARIES.—In the death of JAMES INGLIS, of Chicago, who died September 18th, our profession has suffered a severe loss. Mr. Inglis was a man whose whole interest was in his work, and one who has been of untold helpfulness to many members of the profession. Genial, whole-souled, and hearty to a degree, Mr. Inglis was always ready and willing to put at the service of any photographer his experience and help. There are many in the craft who will count his death as a personal loss.

Mr. Inglis was born in Scotland, in 1835, but has made Chicago his home for many years. His death was due to pneumonia, resulting from an explosion of flash powder with which he was experimenting.

WE regret to announce the death of Mr. G. W. PACH, founder of the well-known firm of Pach Bros., New York. Mr. Pach died at the Sinai Hospital, in his fifty-ninth year, on October 9th, following an operation for cancer. Mr. Pach's long experience in photography has given him a wide acquaintance, not only among members of his profession, but among prominent men and women of the world. He has photographed every president since Grant, and many foreign persons of note. Mr. Pach had during his busy life opened studies at West Point; Poughkeepsie, N. Y.; New Haven, Middletown, Conn.; Cambridge, Amherst, Wellesley, Williamstown, Mass.; Princeton, Long Branch, Lakewood, Ocean Grove, N. J., and Hanover, N. H., and at one time managed them all.

IMPORTANT ANNOUNCEMENT. All interested in the highest aspects of photography will, we believe, be glad to know that arrangements have been made with Professor A. H. Griffith for a series of articles in this MAGAZINE, to commence in the immediate future. Professor Griffith needs no introduction to photographers. He is probably the man of all men who is most sure of a hearty greeting when he appears upon the platform of a convention or other photographic meeting. His criticisms are looked forward to with the keenest interest by all who have heard him speak; and under the arrangement just consummated with Professor Griffith, he will cover in his forthcoming series of articles the general subject of "Constructive Criticism," in its direct and practical application to photography. Professor Griffith's articles will from time to time be illustrated with photographic reproductions that will serve as a basis for his criticism and suggestion.

By Elias Goldensky, Philadelphia, Pa.

WILSON'S PHOTOGRAPHIC MAGAZINE.

FOUNDED BY EDWARD L. WILSON.
L. W. WILSON, EDITOR.

VOL. XLI. DECEMBER, 1904. No. 576.

PREPARING TRANSPARENCY PLATES BY THE ALBUMEN PROCESS.

BY A. J. JARMAN.

THE quality of an enlarged negative depends in a great measure upon the quality of the transparency from which it is made. There are a number of methods that can be employed to produce a good transparency for enlarging purposes. The carbon process yields excellent transparencies when a special tissue is used, also wet collodion, and the gelatine dry plate. When the last-named plate is used a special plate is necessary, and the developer must be changed in its composition if the best results are to be obtained. A *rapid* gelatine dry plate produces a transparency possessing a considerable amount of grain, which being magnified produces in the enlarged negative a coarse and objectionable result. The consequence is that an enlarged print made from such a negative shows very clearly that it is an enlargement. The main cause of this is that the transparency from which the large negative has been made was defective. The difference in two prints of the same size, one made from a negative taken direct, and the other from an enlarged negative is always apparent unless the transparency from which the enlarged negative has been made was faultless. The ordinary dry plate being ready at all times is generally used because it aids rapid production, but the results are only too often very indifferent in character.

It is well known to many of the older photographers that some of the finest results ever obtained in the way of enlarged negatives were produced when the transparency employed was made by the albumen or collodio-albumen process. The finest transparencies that have ever been made for the stereoscope were also produced by this process. A transparency produced by this means possesses the soft and delicate qualities of albumen combined with clear shadows and strong high-lights which characterize collodion. It possesses all the qualities necessary for the production of perfect enlarged negatives. The method of production about to be described will enable anyone to prepare the plates from which these beautiful transparencies can be made. The basis is a collodion film which can be produced in two different ways. First by a collodion emulsion, and secondly by use of a solution of nitrate of silver in the usual dipping bath. The first plan is somewhat intricate, although it would be the best if the plates were to be made upon a large scale. The second method, being somewhat more simple and easily applied, will be described here.

In the first place decide upon the size of the plates it is intended to use, procure a number of them, clean them well in a hot bath of common washing soda (about half a pound of soda to one gallon of water), rub them well upon both sides with a small mop made by wrapping pieces of clean, white rag upon the end of a clean strip of wood. Rinse the plates one by one in a

stream of water, then place them in a clean tray containing a mixture of muriatic acid (one part to twenty of water). This will rid the plates of any trace of soda. Make up the following which is to form the substratum for a preliminary coating previous to collodionizing:

Albumen (white of one egg)	
Distilled Water . . .	50 ounces.

Do not allow a vestige of the yolk of the egg to become mixed with the albumen. Shake this mixture vigorously three or four times during the day; then after allowing to stand over night, filter through two thicknesses of cheese cloth tied over the top end of a kerosene lamp chimney so that when the chimney is inverted it can be inserted into a wide mouth bottle or placed in one of the rings of a retort stand. This filtered mixture may now be poured into a glass graduate and the plates taken, one by one, from the acid bath, rinsed in a stream of water from a faucet, and one side of the glass coated, the excess of the albumen mixture being returned to the graduate by allowing one corner of the plate to touch the top of the graduate. The plate must now be placed in a clean rack to dry. The rule to be adopted in coating plates with a substratum is to coat the side opposite the diamond cut, because a glass-cutter who is a master of his business always chooses the rougher side for his cutting stroke. When the plates have all been coated and dried they are ready for the next operation of collodionizing and sensitizing. Procure a half-pound bottle of collodion ready iodized, the longer it has been iodized the better, and make up a solution of nitrate of silver as follows:

Nitrate of Silver . . .	2 ounces.
Distilled Water . . .	20 ounces.
Iodide of Potassium . . .	2 grains.

Shake this solution well, stand it out in the sunlight for one day, filter it into a glass-dipping bath, and it is ready now for use.

The following albumen solution must be prepared and kept ready at hand for use after collodionizing. It should be allowed to stand for twenty-four hours after preparation and before being used. All albuminous preparations have to stand some time before they can be filtered and used to insure a thorough and intimate admixture of the albumen with the other ingredients, as otherwise the albumen will clog up the pores or meshes of the filtering material, and completely prevent filtration.

Albumen Solution.

Albumen Solution (of Fresh Eggs)	8 ounces.
Strong Water Ammonia .	2 drams.
Bromide of Potassium . .	10 grains.
Iodide of Potassium . .	50 "
Distilled Water . . .	3 ounces.

The albumen must be well beaten up in a clean basin with a silver or silver plated fork until it is well broken up, the bromide and iodide of potassium must be dissolved in the three ounces of water, then added to the albumen, lastly the ammonia. This mixture can be filtered in the first place by tying a piece of cheese cloth over the top of a glass funnel, and rubbing the mixture through it with a small stiff bristle brush. After this operation, it may be filtered through the lamp chimney filter already described. It is now ready for use, and must be employed in the following manner:

Three graduates will be required, two four ounces and one eight ounces. Each four-ounce graduate must be filled with the albumen. The eight ounce graduate is to receive the excess of solution after coating each plate. Now proceed as follows: Take one of the dried glass plates, coat it with the iodized collodion, drain the excess into the bottle, move it to and fro in the air, to cause the excess of the ether to evaporate, then place it upon the dipper and insert it directly into the nitrate of silver bath without stopping. These operations may be carried on under a deep yellow colored light, not necessarily under ruby light. Move the plate up and down in the silver bath a few times, then allow it to stand still for about two minutes, lift the plate up. If a 5 x 7 plate, grasp it by the sides between the middle finger and thumb of the left hand. Drain off the silver solution, wash both sides of the plate carefully in a gentle stream of water from the faucet. Allow it to drain for a few seconds upon one corner. Now apply enough albumen to just cover the plate, and drain this albumen into the eight-ounce graduate. Turn the plate around

and again coat with albumen, this time taking the second graduate. Drain again into the eight-ounce measure. The plate must now be put in a very clean rack to dry. The use of the two graduates may now be easily seen. It is to prevent any possible contamination of the albumen in use.

Where a sufficient number of plates have been coated, stand them away in a dark, warm closet to dry. As soon as dry they are ready for the next operation, which consists of sensitizing the plates once more. This will render the bromo-iodized albumen surface sensitive to light. To accomplish this, another nitrate of silver bath will be required, made up as follows:

Recrystallized Nitrate of Silver	600 grains.
Distilled Water . . .	20 ounces.
Glacial Acetic Acid . .	10 drams.

The plates must now be dipped into this bath and allowed to remain in the solution for five or six minutes, using a glass or hard-rubber dipper the same as employed in the previous sensitizing. The plate must now be washed well and flowed over with a strong solution of gallic acid, the strength being near to saturation point. The plates must now be allowed to dry spontaneously in a warm closet. They may then be packed the same as ordinary dry plates or placed in a dry, grooved plate box ready for use. Great care must be exercised to prevent the surface of the plate from coming into contact with the fingers, as every mark will show upon the development. Transparencies may be made with these plates either by contact or in the camera. If made by contact the negative should be first varnished. The time-exposure will be about fifteen times as long as that required for an ordinary gelatine transparency plate. It will be found to be an advantage to overexpose rather than underexpose, because the development can be kept well under control. It will also be observed that the acid nitrate bath will turn a reddish-brown color after the plates have been sensitized, but this will not prove detrimental to the sensitizing of the plates. Having made an exposure upon one of the plates, develop in the following manner. The solutions for pyrogallic development must be made up as follows:

1.—Pyrogallic Acid . . .	192 grains.
Alcohol	2 ounces.
2.—Potassium Bromide . .	24 grains.
Distilled Water . .	2 ounces.
3.—Ammonium Carbonate .	160 grains.
Distilled Water . .	2 ounces.

Take twelve minims of No. 1 in a clean glass graduate, one dram of No. 2, and six drams of No. 3. Rinse the plate in a running stream of cold water, drain off the excess, then with one sweep flow the developer over the plate. Rock the plate a little, return the developer to the graduate, then flow again. Keep the developer in motion upon the plate by tilting. The image will now quickly appear. It will look very different from an ordinary gelatine plate. The image will be very thin when viewed by transmitted light. It will be very full of detail, but may require strengthening. This is done by applying a small quantity of the following redeveloper with a few drops of a thirty-grain nitrate of silver solution added.

Pyrogallic Acid . . .	12 grains.
Distilled Water . . .	6 ounces.
Citric Acid	3 grains.

The first developer must be washed off and about half an ounce of the above used to flood the plate. It will be observed now that the image becomes very much strengthened. As soon as the required density is attained wash the plate and fix it in a solution of hyposulphite of soda, four ounces to twenty of water. When fixed, wash the plate for about a half a minute in a gentle stream of water. It may now be placed aside to dry. Upon examination it will be observed that the image is of a wonderfully delicate character, possessing all the beautiful gradation necessary for the making of a first-class enlarged negative.

Ferrous oxalate developer may be employed with these plates, which also gives excellent results.

It may be advisable to point out here that care must be exercised in the practice of making albumen transparencies, particularly in the developing of the exposed plate, which is accomplished by holding it by the top left-hand corner after it has

been wetted, then pouring only just enough developing solution upon the plate to cover its surface, and admit of its being rocked slightly so that the developer can be made to flow forward and backward upon the plate. To undertake to develop in a tray like an ordinary gelatine dry plate is not at all necessary. The developer used for the albumen dry plate should never be allowed to come into contact with a tray that has been used for another kind of developer. The quantity of solution required for development is very small. It is also pointed out here for the benefit of those who are not acquainted with the wet-collodion process that the dipping bath and dipper referred to consist of a vertical glass vessel made in various sizes. The one best suited for the above class of work would be eight inches wide and ten inches high, so that a plate 8 x 10 could be inserted, the depth of the vessel being about one inch, all the above being interior measurements. The dipper also mentioned is made either of glass or hard rubber, the latter being the best suited for the purpose. This implement is for lowering the plate into the bath and lifting it therefrom without contamination from the fingers. The plate may be dipped into the nitrate of silver solution for sensitizing and withdrawn at will. When the sensitizing is completed, the dipper should be returned to the silver solution and allowed to remain there at all times until required for use. These glass dipping baths and dippers can be purchased from any large photographic stock dealer, fitted into a suitable case with cover for their complete protection from breakage or the action of light. All these processes for a small amount of wet-plate work, as this process is called, may be carried out in an ordinary dark-room with ordinary caution, providing that no free ammonia is permitted, as this would be liable to injure the nitrate of silver solution. All that will be necessary will be to set up this class of apparatus in a separate part of the dark-room upon sheets of thick blotting paper, so that any solution of nitrate of silver that may be spilled will be instantly absorbed. The little extra trouble necessary to the production of the albumen transparency will be amply rewarded by the production of a transparency that has never been equalled by any other known process. It must also be understood that only that part of the wet collodion process that is necessary to carry out the work required has been described here. There being no protosulphate of iron employed, nor liquid developer made up with the above iron salt, nor other chemicals that are used in the wet-collodion process, an ordinary dark-room may be employed to prepare these special plates without fear of injury to the gelatine dry-plate process that may be carried on in the same room. Development of prints made upon paper printed by artificial light may also be carried on under these conditions. The slight odor coming from the ether and alcohol of the collodion will not be in the least detrimental.

GREETING TO PHOTOGRAPHERS OF U. S. AND CANADA.

To the Photographic Fraternity of the United States and Canada, Greeting:

The newly elected executive board of the Photographers' Association of America will meet in executive session some time next January, in Boston, and to the end that we may serve you to the best of our ability we desire you to offer such suggestions as in your judgment would be for the best general good of the profession. We earnestly trust that anyone having suggestions to offer will communicate with any one of the undersigned as early as possible, and any suggestions made will receive our careful and best consideration.

Respectfully submitted,

Geo. G. Holloway,
Terre Haute, Ind.
C. J. Van Deventer,
Decatur, Ill.
A. F. Proctor,
Huntington, W. Va.
J. M. Bandtel,
Milwaukee, Wis.
F. R. Barrows,
Boston, Mass.

Executive Board,
Photographers' Association of America.

SPOTS ON COLLODIO CHLORIDE PRINTS.

BY W. FOSTER BRIGHAM.

A writer in the *British Journal of Photography*, calling attention to the prevalence of yellow spots on prints, their causes and remedies, says,—

Yellow spots may appear at any time during and after the manipulation of the prints, but usually are noticed after the prints have been mounted and dried, either at once or at varying intervals, according to the particular cause of the evil.

It is noteworthy that prints toned in the gold bath alone seldom show the blemishes, these latter nearly always appearing on prints toned in both gold and platinum. As this is the process usually worked by the professional, let it be understood that the double bath method is particularly referred to in the following. Washing gold toning, washing and platinum toning are in themselves not liable to lead to trouble if pure chemicals are used; the first likely cause is the necessary washing after toning in platinum. This washing must be thorough, or acid from the platinum bath will be carried into the hypo, causing sulphur toning, and in course of time yellow spots. Washing prints to discharge the acid must be done by hand, as running water is quite useless. Six changes in fifteen minutes will be right for a medium batch, but increase this if prints number more than about a hundred cabinets. To make absolutely certain that prints shall be neutralised in fourth washing water, put in a few drops of carbonate of soda solution. Then give three farther changes in clear water, also place a little of the alkali in the hypo.

Insufficient fixing is another frequent invitation to the enemy. The makers of many papers recommend for the bath: Hypo, 1 ounce; water, 20 ounces. I have always thought this ridiculously inadequate and always use, not only without detriment, but probably with a great gain, hypo, 3 ounces; water, 20 ounces, for from fifteen to twenty minutes.

The best way to wash these prints is to give several hand washes immediately after fixing, then wash in running water for two hours, and again hand wash. Say, running water two hours, hand washing twenty minutes. Hand washing is best done by transferring prints from one bowl into another containing clean water. If prints are to be dried for cutting out, blot bebetween pure paper and then spread on clean sheet or fresh blotter.

Mounting should be done with pure starch, made same day, certainly not more than twenty-four hours old. The reader will probably think that the prints, having got so far, are now quite safe. Such is not the case, for one of the most insidious, and, in England, at least, unsuspected dangers is yet to come.

After mounting the prints must be dried as quickly as possible, and not placed on top of one another until quite dry. Why slow drying should cause spots I am quite unable to understand, but such is undoubtedly the case, not only from bitter experience, but also from that of others. Moreover, it will be noted that I say unsuspected in England, but in America the fact is well known, the Aristotype Company laying great stress on this point. They recommend that each print be put through very hot rollers, with card over face. This is doubtless a safeguard, but I think that if the danger is recognized very few precautions will guard against it. The precaution of drying in rooms with fire during damp weather will, of course, be obvious; at the same time do not place too near fire, or dust therefrom is likely to be another cause of the everlasting yellow spot. It will doubtless have been noticed by some at least of my readers that these complaints of yellow spots on C.C. are more frequent at damp periods of the year. How important the above is to all members of the profession can only be judged by the professionals themselves, for blemishes of the startling description of the yellow spot cannot but in the long run ruin, not only the work and reputation, but the photographer also. The C.C. process is, however, very beautiful, and, we think, well worth the extra trouble to guard against faults, for a well-made print is well nigh

permanent when once made. To ensure perfect results, do not forget that it requires the greatest attention and personal supervision at each stage. Also do not do too large batches; you will find it quicker to do two batches of one hundred and fifty cabinets than one batch of two hundred and fifty at a time.

PROFESSIONAL WORK AT THE ROYAL PHOTOGRAPHIC SOCIETY.

BY OBSERVER.

COMPARED with his American brother the British photographer has few chances of seeing the work of his friends and rivals. It is perhaps difficult for an American photographer to imagine life without the influence of his State Association. He sees what the fraternity is doing; he rubs shoulders and gets ideas. In Britian there is no association of professional photographers holding an exhibition of work. Professionals do occasionally take medals, and announce them on their mounts and stationery, but the medals are from exhibitions promoted by amateur societies.

How does the British photographer get ideas? The magazine which he looks up to, and which claims to peculiarly represent his interests, does not publish illustrations, and so he gets no help from that source. As a matter of fact he too often does *not* get ideas. There is a tremendous distance between the progressive and the nonprogressive Britisher. The progressive man has a wonderful but simple way of learning the "latest London novelty". He visits London for a couple of days and stolidly walks up and down the streets where fashionable photographers congregate. There are streets in London, such as Baker Street and New Bond Street, where fashionable photographers are as thick as on Fifth Avenue. They put, or are supposed to put, their best work in their showcases and so the country cousin, by inspecting showcases, flatters himself that he is seeing all that is latest and best. He visits London annually, and may have been coming to the metropolis for years, but he has never got farther than the showcase. Perhaps he is wise in his generation. It is the operator who does the work, and the visitor would get no farther than the reception room.

Some day I may accompany a country photographer on one of these tours. For the moment I am interested in another way of seeing a little of what the profession is doing. The Royal Photographic Society holds an annual exhibit in London. Like other British displays it is largely amateur, but a few of the leading lights of the profession occasionally send pictures. Time was, not *very* many years ago, when a fair proportion of the display was good sound professional work. But since then photography has reached a branching path, and amateur heart has travelled far from professional photography. Now the profession holds aloof, though a few of the leading lights may occasionally be seen there, and for the last few years a room has been exclusively devoted to professional display.

I visited the New Gallery, Regent Street, intent on learning more of the professional. I paid my shilling and entered a small hall, a splashing fountain in its centre, and the stands of dealers around it. In front of one was a large room hung with about 350 selected pictures; on my left was a room of specially invited work; on my right the professional display. There is a small gallery around the entrance hall, hung with scientific and technical photographs. I turned at once into the professional room.

Ye gods! what a display! I saw at once that it should have been labeled, "trade section." There was one little collection of about ten portraits of celebrities, which were well worth seeing; there was a little case of colored miniatures, and there were a couple of pictures by one of the judges. There was a collection of twenty good theatrical pictures by a large firm, and an equal number of very moderate pictures by another firm.

Kodak Ltd. had a series of fine enlargements from kodak negatives; and the Autotype Company showed a number of carbon prints, half of them copies of paintings. One firm exhibited prints on a new printing paper and another boomed a "bromide linen" showing a number of painted pictures, with their fabric as a photographic base. In the Royal Photographic Society official catalogue we read "the picture permeates the fabric and permanency is thus secured."

And I had paid my shilling for this! I turned from the trade exhibit to the invitation section, contributed by several European societies and by the Salon Club of America. There was nothing which could at all be termed professional. Colored gum-bichromates, snow scenes, atmosphere effects, subdued nudes, such were the invitation pictures.

I left the room and entered the main room, where 350 pictures have been chosen by the hanging committee, out of many hundreds submitted. The most noticeable professional work is that of W. Crooke, of Edinburgh, who sends four pictures. They have rich, dark quality like a fine engraving, and he titles them in script, and in his framing carries out the engraving idea. It might be said, Crooke first, the rest nowhere; for there is practically no other British professional work. There are one or two pictures of women which would honor any gallery, and there are a score or two of "studies" such as few photographers would find a steady demand for.

There are a few American pictures hung, though it cannot be called an American year. There is an unmistakable head by Pirie Macdonald, and a couple of pictures by Strauss. And it seemed quite like America again to see the familiar signature, Pierce. Congratulations to H. H. Pierce; one of his pictures is reproduced in the catalogue, and the other receives the society's gold medal.

Altogether the exhibition tells nothing of the British professional. Either he ignores it, or it ignores him. It is a curious state of affairs. Something like half the population of the United States is packed into a country about the size of New York State. Photographers must be as plenty as blackberries, and yet they never seem to exchange greetings. I went to the Royal Photographic Society to learn what the profession is doing; but if I wish to know I must apparently join the procession and make the grand tour up and down Baker St. and Bond St.

ACCIDENTS.

BY A. HORSLEY HINTON.

I WONDER how the exhibitions affect the various photographers who visit them—I mean, what is their influence, if they have any, on the work of those who go to see them?

Too many inspect the pictures and silently approve or condemn in proportion as each picture comes up to or falls short of their own preconceived standard. Do we, for instance, regard each picture, or the more obviously important ones, with the same seriousness we expect others to regard our own work, and are we always quite honest about our own work? I often wonder how large a part mere accident plays in the production of a picture, and whether, if the goddess Fortuna were in reduced circumstances, we should be honest enough to subscribe towards her pension in acknowledgement of our past indebtedness!

How often has a picture, on the cleverness of which we have so plumed ourselves, been something totally different to that which we set out to make! The negative was fogged or badly over-exposed, and by accident gave an evening effect instead of that of a sunny day, and so we took the hint from blind fortune, and gave the public an evening picture as if it had been the outcome of deliberate intention. Perhaps we ventured a portrait of some charming sitter, and thought we would delight people with a picture of sweet girlish beauty wreathed in happy smiles; but we taxed

the sitter's patience so much that we had to entitle the finished picture "Day Dreams," or even "Melancholy," implying that the idea suggested by the title was the one we throughout intended to express.

Then there is the case of an outdoor scene—perhaps a gaunt signpost or tree on a wayside—and just as we approach, as good luck has it, the sheep group themselves in a perfectly ideal manner, raise their heads in a leisurely and unstartled way just as the declining sun beams out from between the bars of purple cloud, and we snap it without a moment's consideration. Then from the finished enlargement, we establish for ourselves or even demand a reputation for being a master of composition! I am afraid there is a good deal of humbug in photography. Is the beautiful modelling of an arm, the wonderful suggestion of texture, the admired mystery of a deep background always the outcome of thought, careful arrangement, and perfect craftmanship? The spot of high-light, which the knowing ones gloat over because it is so well placed, exclaiming, "How cleverly he has put the high-light in just the right position!"—how often has it happened that the particular spot in Nature was quite overlooked, and not noticed until some friend saw a rough print and drew our attention to it by his flattering comments, and perhaps even then and to this day we do not quite see the merit of the particular feature or quality which chance has given, but others speak well of it, so of course we are not going to give it away. I trust no reader will imagine I have particular cases in mind. I have not; but I can recall instances in which I have congratulated a man on his picture: its suggestion of atmosphere and distance perhaps has struck me—but in praising I have not particularized—only to be met with some such response as "Glad you like it. It's very like the place; but I must intensify the negative and get a stronger print," and subsequently he produces a print harsh and brilliant, showing that the very quality admired was unappreciated and accidental.

With the accident of circumstance, the chance of a good grouping or nice arrangement of light, it is different; for the photographer shows his knowledge, and credit is due for his having appreciated the opportunity. Similarly one watches one's sitter until just the desired expression flits across the face. A cynic may say, "It's all very well, but So-and-so's picture is just a lucky opportunity." But then the producer shows he knew it *was* a lucky opportunity, and availed himself of it. And again, one may be developing a plate or a gum print, and a light or a shadow or a cloud may come differently but better than he had planned, and in following it up and acting upon such accidental suggestion, the worker proves his artistic appreciation, and is justified. But somehow we cannot regard such methods as highly as when we know that the picture before us is the consummation of deliberate purpose and persistent and consistent effort—consistent, because from the moment the subject was chosen to the completion of the finished print one idea was pursued from step to step. Experiments might be tried by the way, trial prints and duplicate negatives made, but only to return and persevere in finding the way leading to the realization of the original intention.

But such wholesome endeavor to purge our pictures of any fortuitous grace and virtue is only for the purpose of personal introspection. We have no right or reason to suspect the successes of others of being merely accidental, but must accept them as being from the first intended to be as good or better than they are. Moreover, if we are wise, we shall try to get a hint from each for our own use. As I have suggested, most people like a picture according to the measure in which it complies with the ideas and principles which guide their own work, and which they themselves work by. If any particular feature offends us, we should endeavor to guess at the reason of its presence. "I don't like that tree, or rock, or patch of light, but does it fulfil any purpose? How would the whole look if this or that were omitted or treated differently?" Such is the question we should put to ourselves before passing sentence. Pictures that only partially satisfy us or which fail to make any appeal, may, by such a course, become exceedingly interesting if by closer study they begin to reveal the state of mind of the producer. You begin to see in imagination the artist at work, feeling and

trying, and resorting to various artifices to achieve his wish. You begin to sympathize with the unknown worker as you realize how, at last, in order to gain his end, he decided to emphasize this or omit that, even though he would rather have got on without.

Personally, having had some few years of experience, I have latterly been much more cautious about condemning a picture which at first sight seemed to me outrageous, because on more than one occasion previously, though not necessarily in public, I have utterly condemned some picture, which I have subsequently come to understand, and then I felt a fool, realizing that, like most people, I had looked for in that picture an expression of ideas in conformity with my own, only to discover later that the picture contained other ideas, much finer and quite different to my own, and to these I had been blind. Say it was a woodland scene. I wanted to find the isolation of tree trunk, the concentration of light, the mystery of atmosphere enveloping the more remote trees, and so forth ; in short, I looked to see in another's version a confirmation of the ideas with which such a scene had on occasion inspired me, but later, by some accident, it has come like a flash, what the producer of that woodland scene had been trying to do, and had, with more or less success, done. Why, sirs, he had found flowers in that woodland to which I had been blind in my search for fruit, so I have had to admonish myself for narrow-mindedness or restricted vision. For my part, I feel it to be running too great a risk of possible subsequent discomfiture to call any picture, no matter how preposterous it may *seem*, "a dirty smudge," to quote but one of the favorite epithets employed by people who, by plausible volubility, foist themselves upon ignorant magazine editors, and so secure and at once abuse the high privilege and grave responsibility of expressing themselves in public print. Sir Critic, you should live in a tower with windows looking all ways and, moreover, keep those windows clean.

Somewhat akin to the instinctive searching in another's picture for what you would fain have put in your own is a mischievous tendency towards labelling photographic or any other pictures after the master of whose work it most reminds you, because it is ten to one that unless you have really studied art, the something which characterizes a certain master's work in your eyes is its less essential character, whilst the photograph which you say reminds you of So-and-so is wholly lacking in the very quality which has all along been accepted in giving the So-and-so's art its distinction. Moreover, the habit is apt to lead to one regarding Nature through the eyes of some artist whose work has appealed to us, and our own interpretations of Nature are then nearly certain to be imitative and mannered. To Carolus-Duran is accredited the saying, "If you go into the fields you will not see a Carot." But before a Carot you not only see but feel the fields. So, when you confront landscape or sea or figures, you must not expect to see things as they are depicted in good photographs, because if they are good as pictures, then they are the personal impressions of their producers and not of yours. You can no more adopt another's impressions than you can imitate his voice or completely enter into his thoughts. You go to Nature for yourself, enlightened by the example of others, or inspired by it to get your own impressions, and here the photographer should be somewhat at an advantage over the painter. The latter may yield to inclination, and stay at home and paint from memory, or draw according to rule and tradition, but the photographer *must* go anew to Nature for every picture. He may falsely transcribe, he may fail to convey his ideal, but he has had the benefit of having drawn afresh from Nature's inexhaustible spring, and so constantly renews his base of operations.

Yet how does the average photographer profit by this frequent contact with Nature? Witness the thousands of photographs which, judged from the standard of the photographic schools, are irreproachable—clear, clean, comprehensive, with just a certain general softness to support their claim to being something better than the usual thing, but is not this softness very like a mere veneer of politeness, which even a savage might conceivably acquire, his real nature being the while unchanged? There must be something more than the accurate photographs nicely done if the

work is to possess lasting interest, and appeal to the sympathy of others, as does a work of art. With the perfect equipment which modern photography furnishes, and given a certain skill or accustomedness to its proper use, one almost feels that the photographer need trouble himself less than any art worker about accuracy to Nature, because so large a measure of fidelity to fact is thrust upon him, and is inevitable; therefore he should be the more free to devote himself to imparting to the work an original and personal character.

If the influence of the exhibitions on the many who visit them with the hope of ultimate self-improvement were only to be the firing of new enterprise, if the visitor went away merely having caught an infection from witnessing the evidence of serious endeavor, of striving for something new and better, then it were all for good; but it is to be feared that too many go away resolved to *do something like* this or that picture which has taken their fancy, and the promotion of the imitative faculty is not for good, especially because the would-be imitator or follower is prone to select the wrong pictures as his models. I say "wrong" pictures because he is nearly sure to select those which seem least unlike his own, or which appear to carry out his own inclinations a little further than he has been able to do. We are all too apt to judge the work of others by our own predilections and the standard which we ourselves are striving after. If a picture contains something which we can imagine ourselves doing, but done a little better, we applaud, but if we recognize nothing which we have ever felt like doing, we too readily condemn. Maybe we think we see some quality or characteristic displayed which we remember to have often produced by accident and unintentionally, and promptly discarded because we deemed it bad; but then it frequently happens that a similarity between the result of a deliberate intention and an accident is not as close as we think, and whatever degree of similarity there may be is between unessentials, and not between the superiority of the serious intention over the accident existing in spite of some superficial likeness. Thus a bright, irritating spot of light may be indiscreetly left, and create a sense of irritation, when it should have been "spotted" out, yet a very similar spot of light in another instance may have been left, or even deliberately introduced, as a foil to some other light in the picture, or in order to reinforce the adjacent shadow.

We may generally be sure that in a work which, though it seems incomprehensible, appears to have been seriously and intentionally produced, those matters which do not accord with our own rules and standards are not there by accident.

Then, again, most people approach a photograph not only looking for their own pet idea, but expecting to find certain characteristics which they have been accustomed to find in a photograph. This frame of mind is perhaps as great a stumbling block to individual progress as anything. We know photography can give infinite gradation, infinite detail, perfect perspective, and that knowledge and skill can control all so as to conform with the canons of good composition. And so, if any of these things seem missing, the spectator feels that he is justified in complaining, whereas he should try and realize that in all probability these omissions are not due to accident, or incompetence, or stupidity, but are made with some direct or secondary purpose. Not that when you have realized and admitted that this is so, the picture will then come into line with your ideas of excellence. You may not even then be able to pronounce the work as fine, but you should avoid the indiscretion of saying it is bad.

Remember that in most arts there is a certain adroitness in execution, a subtle tactfulness, which is yet distinct from trickery. Learn, too, that it is all but useless to take one of your own orthodox prints, made without any particular intention, and then ask, "What can I do to make these more pictorial?" The pictorial intention should have been present at its birth, it should have been the very breath which gave it existence. All that you can do later is but to impart to it that veneer which may make it pass muster, and leave it a little more void of offence.

Above all things, do not for a moment fall into the ignorant error of condemning what strives to be pictorial by saying it is

not true, or not wholly true, to nature. Considering how old is the principle in art, it remains to the shame of the great mass of photographers that the idea is still prevalent that the highest aim of pictorial art is to be "like" and "real."

Mr. George Clausen, in his recently published lectures to the Royal Academy students, says, "The realism of surfaces only is a false realism. It seems to me to be a kind of evasion of the difficulty of true representation, and to ask that we should assume that the care with which the trivial things are rendered implies that the greater ones are equally well rendered also. For though we may have all the buttons right, the ring on the finger, the curl in the hair, and so on, we cannot produce truth of resemblance by the sum of little things without first securing the great ones.

It is a common error that much detail necessarily means completeness or conscientiousness." And, to quote an authority from among the ancients, Sir Joshua Reynolds, in his third discourse, says, quoting Proclus, "He who takes for his models such forms as nature produces, and confines himself to an exact imitation of them, will never attain to what is perfectly beautiful. For the works of Nature are full of disproportion, and fall very short of the true standard of beauty." This was said of the artist's production of figure, but applies equally to all other description of subject.

But perhaps you may say, "How can a photograph do other than copy Nature?" I have been supposing that it is you who have condemned this or that for being untrue to Nature, and therefore not a copy of it, so there is your answer. It is a fact that many photographs *are*, in the sense here implied, unlike nature; it remains for you to try and see the means adopted, and the intention, to improve upon—that is, to realize—nature, and to impart something of that which the artists imagined it might be. If you insist on the realism of externals, and care nothing for that higher realism of expression or idealism which alone may reach the level of very fine art, then you have no real sympathy for pictorial art, and to you photography may be a very useful means of definite realization; moreover, you will be saved much labor and disappointment, because photography's highest excellence in the direction of accurate recording is easily attained by a little intelligent practice—not so the application of it to pictorial ideas.—*The Amateur Photographer.*

THE PRESENT EMANCIPATION.

BY PAUL CLARE.

It was a great day for the American photographer when he emancipated himself from uniformity of mounting. A slight thing in itself, the mount conventional was typical of the hide-bound traditions which played so large a part in bringing hard times to photography. We have moved slowly in the direction of freedom. Who would have believed, forty years ago, that there was any way of keeping photographs other than in a heavy carte-de-visite album? What atrocities those albums were, bound in dark leather or cloth, with raised patterns and ivory bosses on the covers. The covers were generally too heavy for their contents, and the leaves used to break away from their places after a few friends had been entertained with the family portraits. The old ivory-bossed album had its day and was succeeded by a larger offspring, holding one cabinet or four cartes on a page; a book in padded covers of soft leather, gaudily decorated. The day of the album is, for the present, over, and the mantelshelf or table holds the field. A happy augury this of the passing of the day when the permanency of the print was boomed as the all-important. Permanency is a good thing in its place, and the photographer who does not supply a print fashioned to withstand the fading ravishes of time is not an honest workman. But to treat a photograph as a permanent,

sufficient record of a man is by no means to the commercial health of photography. There is no more reason why a normal, healthy man should be content with his presentment of five years ago than that he should be content with the meal of five hours ago.

And so the present fashion of variety and change in mounts and the present fashion of standing a photograph on a shelf are good for photography.

Photography as a profession has so suffered from being in a groove that it is probable it will never again become as fixed in style as it has been in the past. Then, photography did not know that it was shackled until times came when the shackles began to fret and gall. When photographers began to try new things the shackles began to loosen. It was not all plain sailing. When the albumen paper monopoly was broken there was much heartrending over beautiful prints returned; they had hopelessly yellowed. But among the chaos of fugitive papers answering to doubtful manipulations of toning and fixing was one sound product, and Aristo has survived—a paper of permanency and of infinite possibilities for beautiful work. For years we heard pathetic stories of the superiority of the vanishing wet plate, a mere wail, we now know, of the man stuck in the hole of unprogressive ideas.

The cry of "old versus new" in styles of work has died from our ears. Those who understood themselves, in either camp, went their way and gave their customers good value. The non-understanding ones and the cranks found their respective levels. One of the results of the whole shaking up is that there is more resource and originality in photography now than ever before, and no falling off in honest technique.

The past is put behind us, and it behooves us to think of the present, into which the future is forever merging. The present of photography is good and the prospects stand fair. If ever a cloud comes over photography, and commercial prosperity ebbs and flows like a tide, the shadow will fall first on the man who is least alive and up to date. Nearly all the "leaders of photography" would weather a commercial gale, for they are men who have founded their business on sound, brainy work. What would happen to the smaller men depends very much on what manner of men they are. The men who have grasped the possibilities of the present emancipation, the men who do good work, who know how to pose and print and trim and mount to suit the individual taste or whim of each customer, the men who understand the value of judicious advertising, these are the men who will defy a period of adversity.

ABOUT GETTING UPSTAIRS AND A PEEP INTO THE GARDEN.

BY J. B. H.

THREE years ago I fulfilled my long cherished ambition and visited Europe. Of course, I called on dozens of fellow-craftsmen and brought away much information and many experiences. But the one thing which more than another haunts my memory is the London staircase. Perhaps it was because I struck London—and the fashionable photographers—first. The London business places are mostly converted dwelling houses. Mansions, many of them must have been, but they were built in the good old days when people stood on sturdy limbs and were content to use them. In Fifth Avenue I take the elevator; but there are no elevators in Bond Street You enter the dark doorway, between the two showcases, and pound up eighteen carpeted stairs to a little landing where the stairs double back on themselves, then up seven more stairs, and you are in the reception room. There is no ignoring of the stairs; a seven-inch rise and a nine-inch tread is the method of their construction; when surmounted the pulse has quickened one or more beats.

To reach the studio the process of ascension is repeated, sometimes twice. The third lot of stairs are steeper and narrower than those below; it was up these that in old days the servants toiled to bed. When I had climbed to two or three studios I thought that all I had to do was to introduce an elevator into a London house and start a studio among the chimney pots. Later on I found that there were lots of elevators in London with studios at the top, and so I came to the conclusion that the Britisher did not object to climbing.

Whatever the Britisher may think, we on this side won't climb if we can help it. But many of us in small cities cannot help it. Whatever men at the top can afford to do, we smaller men have not the money to rebuild the interior of a house, nor can we always move to a more conveniently constituted location. I have a studio at the top of seventeen rather narrow and rather steep steps. If I could make them broad and shallow, with handsome balustrades, and niches for palms and ferns, they would not be a defect; they ought even be a feature, but neither finance nor the construction of the house will admit of it.

When I returned from Europe I thought the thing out but decided the steps must stay as they were. Anyhow, I argued, they are more of an inconvenience than an actual bar to business. Then I thought of building a studio in the garden, and so having everything on the ground floor; but I did not care to spend so much money.

So far I have talked about stairs and with no result. Here my stairs stand to this day, and I expect they will go on standing, and my sitters will continue to climb up them. But while I was smoking in my garden and thinking it out I wondered why a glass roof was necessary to photography. Weather permitting, a good photograph may be taken out of doors, and though the professional portraitist can no more get along without a glass covering than he can get along without some advertising, he need not be absolutely fettered by his roof. Business is not *all* advertising, and it need not be all gallery work. I am a little slow about new ideas, and have never once dreamed of garden photography as the one essential to success in photography. But a week after the idea had occurred to me I had a sitter, a young girl of nineteen or twenty in a simple white dress, a dress that would soon soil in the hayfield or the woods, but one that is often seen there in "pretty pictures." After I had made four exposures I suggested that she should come into the garden for an outdoor picture. Standing just in the shade of a maple tree her face received a soft light, and the edge of sunlight was flecked across her dress. It made a pretty picture and proofs from that negative were approved. Even without retouching it was a very taking picture, and with the face carefully worked it might almost be called a triumph. It had opened my eyes to the money-making possibilities of photography in the garden lot.

The bright light of outdoor summer is rather trying to photography, but my two maple trees have proved invaluable to me. I wish I had a birch or some other tree, lighter in foliage, in addition, but not having it I have done the next best thing, I have planted one to be ready for the next generation.

Along one fence I have a mass of tall bushes, and a patch of the other fence is covered with thick vines. Finding that pictures taken out-of-doors were proving a success, I have from first to last spent quite a little money in garden accessories. I have built a flight of five broad, shallow steps on which my lady may stand. And I have a wall before which she may stand or over which she may lean. Between the maple trees a hammock is swung, and a couple of easy chairs prove alluring to the elderly folk.

One of the factors in my success with garden-work has been my camera. It is a 5x7 long extension Premo. Whatever the merits of the portrait lens in my sixteen-foot studio, I find that the longer focus lens is the best for outdoors. The figures blend naturally with the surroundings, and I can get all the details in my central object without seeing everything else horribly and aggressively out of focus. And the exposure is sufficiently brief for all practical purposes.

I have tried garden photography, as an adjunct to studio work, for two seasons

now and I am more than satisfied with the results. I am sure it has led to larger orders than before; the money received for out-door work has not met with a corresponding falling off in receipts from the studio. And I saw the possibilities in my garden only when I began to fret about customers having to climb seventeen stairs.

THE MANUFACTURE OF DRY PLATES.*

BY S. H. WRATTEN.

THE following article reprinted from a recent number of *The Photographic Lens* cannot but be of interest to readers of WILSON'S PHOTOGRAPHIC MAGAZINE, who are, we take it, more familiar with the operation of using dry plates than with the methods employed in their production. A careful reading of the article will give one some idea of the reason why good plates cost money and are worth it.—[ED. W. P. M.]

It is now fifty-four years since the first gelatine dry plate was made by Poitevin, who must be considered as the originator of the use of gelatine as a vehicle for the silver salts. Crude as his process naturally would be, it marked the beginning of a new era in photography, destined to revolutionize all the then existing methods and aspirations, and eventually to build up new trades and completely change the policy of other trades, which originally had no connection with photography. Twenty-one years later Dr. Maddox brought forward a gelatine emulsion process, which immediately put dry-plate making on a practical working basis, inasmuch as he disassociated his method from the existing wet-plate practice, which had cramped the utility of Poitevin's invention, and boldly emulsified the sensitive salts in the gelatine with which he coated his plates.

Two years later the first commercially made gelatine dry plates were placed on the market by Burgess. So much for the historical side of my subject. I have touched on it very briefly, as history is generally considered a dry subject; but I feel certain that could I ably tell you of the strivings and struggles of the pioneers, and the manner in which they literally fought their way to a knowledge of the laws of Nature affecting their particular calling, you would feel with me that the early history of dry-plate manufacture is full of romance and interest.

At the present time the dreams of the earlier experimentalists have been more than realized, and gelatine dry plates a hundred thousand times more sensitive than the earliest make are now in general commercial use, and it is about the manufacture of the present-day dry plates that I now wish to speak, and, with your permission, I will take the different stages of manufacture as they appeal to me.

The factory devoted to dry-plate manufacture consists practically of five departments—the glass-cleaning, the emulsion, the coating, the drying, and the packing departments—in all of which the strictest cleanliness and freedom from dust is demanded. Until comparatively recently all glass used for dry plates was of English manufacture. For a long time after the quality of Belgian glass had reached the standard required, incorrectness of the cutting prohibited its use. The rectification of this very small but important matter was due primarily to an English manufacturer, who, feeling that he could get a superior glass, if once the correctness of cutting could be assured, went to Belgium and personally instructed the glass-maker how to overcome this trouble, and in the special requirements of dry-plate makers. To-day the glass of from twenty-five to thirty plates to the inch comes from France; the greatest portion of imported glass, that running from twelve to twenty-five to the inch, comes from Belgium; and it is only in glass of a heavier nature that the home market maintains its supremacy.

Of the agents used for cleaning the glass, which is now nearly entirely done by machinery, soda carbonate stands pre-eminent.

* A paper read before the Croydon Camera Club.

The character of the matter to be removed sometimes varies, and to meet these variations, caustic soda, iodine and alcohol, whiting, tripoli, and alum are used, and if the substance is still obstinate, soaking for twenty-four hours in weak muriatic acid is resorted to. After being thoroughly cleansed the plate is dipped or flooded with a substratum bath, which is generally a mixture of chrome-alum and gelatine, very weak, but sufficient when dry to give a better adhesive surface for the emulsion coating. The cleansed plates, having been thoroughly dried, are next taken to the coating-room, wherein and henceforth all operations must be conducted in a properly screened light. The emulsion with which the plates will be now coated is a mixture of gelatine, iodide, and bromide of potassium, silver nitrate, and ammonia. These components are all mixed together, care being taken that the bromide of potassium is always in excess to prevent fog, and are digested for some hours at a temperature varying from 160° to 190°, according to the season of the year and the kind of emulsion. When the digestion is finished —*i.e.*, when by transmitted light it exhibits the correct color which ranges from red to green, fresh gelatine is added and dissolved, after which the whole is frozen ready for the shredding which precedes the washing-out of the soluble salis formed during emulsifying.

The discovery of the necessity and advantages of this removal of the potassium nitrate salts was due to the researches of King in 1873. The emulsion, after washing, is again digested, and gains greatly increased sensitiveness thereby, and after an addition of spirit is ready for the coating machine. This machine consists chiefly of a train of bands which carry the glass plate under the coating weir, clean the backs, set the emulsion, and finally deliver the coated plates ready for stacking in the drying room, from whence, after a stay of about seven hours in a constant current of warm, filtered air, they are removed to the packing department. The regulation of the amount to be delivered upon the surface of each plate is effected either by pumps, variations being obtained by altering either their number or their length of stroke; by scrapers, which scrape adhering emulsion from a glass roller revolving in a trough of emulsion, the regulation being effected by the width of the scraper; or by the simplest of all methods, the adaptation of the Marriott's bottle. There is still much room for improvement in the feeding and delivering apparatus at present employed, but this is only true if regarded from the economic side of the manufactory. Judging from the finished product no further improvement is necessary; the evenness of the coating exceeding the evenness of the surface of the glass. Before proceeding to the packing department the question of dark-room illumination may well claim our attention. With plates sufficiently sensitive to give well-exposed negatives with the exposure of one-thousandth part of a second in daylight, and with panchromatic plates sensitive to all but the deepest red, the coating, examining, and packing must be conducted practically in darkness. The method adopted to obtain the maximum luminosity with the minimum risk is known as the "slit" method; this is simply an aperature about 1½ inches by 6 inchess so arranged with walls as to stand away from the lamp-screen about 2 inches. It may be imagined as a reversal of a focal-plane shutter, inasmuch as instead of the slit moving over the surface of the plate, the latter moves over the slit, and the brief exposure for examination does no harm.

The packing of plates is not interesting, being, after examination, simply a matter of careful handling and method; but the cutting machinery which reduces the size of the coated plates to quarters, halves, etc., is well worthy of attention as a triumph of ingenuity and finish. This machine, which is driven by a small motor, can be readily adjusted by the simple insertion of pegs to divide any required size, cuts easily thirty dozen whole plates to quarters per hour, entering each plate one thirty-second of an inch in, and leaving with the same margin, thus avoiding all chipping and consequent dust. The testing of the coated plate is conducted preliminary to packing. The tests are always made by the chief, the manager, or an assistant especially trained for the task. The faults looked for may be divided into three classes: Those due to emulsion, the

more prevalent coating defect, and those resulting from faulty drying. Those due to causes directly connected with the emulsion are most to be feared, inasmuch as they generally result in a day's work to be washed off.

Tests as to sensitiveness, density-giving power and gradation are made with standards of light and exposure which vary together with their method of application in each works. Naturally, absolute correctness is totally out of the question; but as in ordinary photography such correctness is not needed, nobody is any the worse for the deficiency.

Some day in the far future, when if only optically plane glass is coated, it may be requisite to know the exact speed of a plate and its table of determined densities; but, until then, I feel sure that the clever researches which have recently been made in dry-plate sensitometry by our members, Messrs. Mees and Sheppard, will be chiefly useful in the laboratories of dry-plate factories, where I feel sure their works, together with the epoch-making discoveries of Messrs. Hurter and Driffield, will eventually be reckoned as assets of national value to us as the leading dry-plate manufacturing country of the world. In addition to the ordinary tests, orthochromatic plates are subjected to further tests for color sensitiveness; these are mostly conducted by exposure through colored mediums, by the spectroscope, and by camera trials on charts of colors. If the resulting prints are to be used for advertisement purposes, over-correction appears to be generally regarded as a necessary feature that the result may have a distinctive appearance.

Before closing my remarks I would like to mention a few interesting facts. Dry-plate, as well as wet-plate, photography may be said to be primarily the result of French ideas, solidified and brought into working form by the slower-moving English brain. The home product of dry plates is by far and away superior to the Continental makes, and this to me has always been an enigma. Practically every article used in the manufacture of dry plates is imported from Germany, yet in that country of profound thought and research there is not a plate factory of any magnitude. True, there are many small works; but, travel over the world as you will, or even go no further than the Continent of Europe, and you find English-made plates are preferred and used. This fact is keenly recognized by American makers and taken advantage of, as indicated by their purchase of English factories.

The question of prices and their possible reduction is bound to arise in the near future as the possibilities of over-production already loom in the distance. A great reduction must not be looked for, as the manufacture of dry plates has yet to free itself from many uncertainties, which, combined with the increasing cost of raw materials, diminish the possibility of a lessened price-list.

Nor do I think any great new departure in dry-plate manufacture is likely to occur. Like the bicycle, the dry plate is rapidly approaching a regular style, the prevailing indication being chiefly indicative of an extended use of the fastest ordinary and color sensitive plates, and a neglect of slower plates even for purposes where their design makes them most efficient.

Manufacturers of photographic apparatus and others using metal will be interested in the reports of a new metal or rather alloy for which a great deal is claimed. It is the result of the experimenting of two Tuscan engineers and has been patented under the name of Radium Argentiferum. The alloy consists of common iron with a certain proportion of silver and radium. The amount of radium is infinitesimal and very probably occurs as an impurity. Copper and phosphorus also occur in its composition, the latter of which is a most important ingredient. The patentees claim that the new alloy is stronger than steel; that it does not oxidize, is a better conductor of electricity than copper, and can, in large quantities, be manufactured at one-tenth the cost of bronze.

Whether or not this is merely a newspaper yarn remains to be seen. Still and all there is nothing outside the bounds of possibility in it, and very possibly a valuable discovery has been made. We watch with interest the result of the claims.

By J. Edward Rosch, St. Louis, Mo.

By J. Edward Rosch, St. Louis, Mo.

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THE ROSE GIRL.

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By S. H Lifshey, Brooklyn, N. Y.

THE PORTRAIT AND THE STUDIO.*

BY H. SNOWDEN WARD.

The eighth of a series of illustrated papers wherein Mr. Ward will describe the methods of prominent English and American portraitists, based on his experience as a sitter. In this article the selection of a subject and the methods of Misses Garstin and Antrobus, London, Eng., are discussed. Later articles will refer to the present and earlier papers, hence the series should be preserved.

THE studio of Misses Garstin and Antrobus is especially interesting because it is "quite different." In the first place, the ladies who are responsible for its success have not gone through the usual course of studio training. They are pupils of the Polytechnic School of Photography, owing all they know of the craft to the excellent staff of that institution. In the second place, the studio is a ground-floor apartment in a private house in a West End street—New Cavendish Street, W.—which has hitherto been sacred to doctors and professional men. It has no showcase, and no display beyond a modest brass plate alongside the similar plate of the medical man who occupies the front of the same floor. In the third place, the studio is a back room, without any natural light, and the exposures are made by means of the "enclosed arc" lamps of the Westminster Engineering Company, Ltd., London, N. W. Thus it will be seen that Misses Garstin and Antrobus are decidedly innovators, pioneers of a new movement, and, therefore, very interesting. They both wished to go into business, studied photography under Howard Farmer, and acted under his advice in the fitting of their studio after they had decided upon adapting ground-floor rooms in a building not previously used as a studio.

The aim of these ladies is to reach a number of people who do not patronize the ordinary studios, especially elderly ladies, invalids, and children; but they are quite prepared for all classes of sitters, and some of their most satisfactory portraits are of men. For the special class, the privacy of the building, its position in the residential West End, the absence of stairs, and the home-like nature of the surroundings are expected to prove attractive. The reception room is the sort of place where a cup of afternoon tea might well be enjoyed, and has no suggestion of studio or business; yet the studio is only separated from it by a pair of curtains.

H. SNOWDEN WARD.
By Misses Garstin and Antrobus.

In operating one of the ladies superintends the pose, arrangement of background, etc., while the other attends to the lights, first for focussing and then for

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the exposure. The focussing and management of the camera are in the hands of a male assistant. The lighting is all on one side of the room, from which the lamps are divided by a partition of ground-glass windows, something like the side of a studio. Several lamps are in place, and by using different arrangements of them a considerable variety of lighting can be obtained. The light is of a soft, violet tint, not at all startling to even the most nervous sitter, yet powerful enough to allow of the ordinary exposures being from two to four seconds, while very much shorter ones can be made when children or animals render them necessary.

A PRESS SIDE-LINE.

BY A LONDON JOURNALIST.

PROFESSIONAL photography means portraiture, and it will continue to mean so to more than ninety per cent. of those who make a living with their cameras. But while portraiture is the greatest standby to the photographer, it is by no means the only one. Many a wide-awake man changes a bare living into a comfortable one by taking up some special line. I met a man recently who told me that he was increasing his income more than fifty per cent. by picture post-cards. If I had been in his place I should have smiled at the "craze" and despised it. But he was wiser, he saw his opportunity and took it. All the wealthy people of the village—and they were numerous—were wont to be photographed in Fashionable West End studios, and never visited the man whose largest camera was whole-plate. But when he offered them picture post-cards at three shillings a dozen they bought largely. The post-cards were of their own houses, their gardens, their gate-lodges, or their live stock. By offering such a number of subjects the orders were satisfactorily large. By these post-cards a great deal of erstwhile "spare" time was made to earn good wage—and something over. Probably many photographers could not make a success with post-cards; conditions vary. There is no one line which may be universally adopted by those "desiring to increase their income," but there are many lines which prove paying ones in some places.

But I did not start this article to preach about side-lines for portrait photographers; that will keep for another time. But just as the portraitists may make a smaller or greater percentage of money outside the usual groove, so does a certain percentage of the profession break away entirely from the ordinary studio work, and make money in other lines.

It has been said that the profession is recruited from amateur ranks. I know very little about it, and so perhaps am rather dogmatic in my opinion—but I certainly do not believe it. But I *do* know several cases where amateurs have drifted into commercial work where the bright son of a professional worker might just as well have had the chance—if he had only seized the opportunity.

The special side-line I have in mind is connected with Press photography. I am not going to advise anyone to rush into that much-belauded and little understood business, the supplying of topical pictures to the weekly papers at half a guinea a time. There is money in it for a few, and the field is well filled. But several papers know that they want a man who will do special commercial work for them—and other papers that do not know it will do so when the right man explains the situation to them. I know the papers want the man, for within the last six months I have myself had two offers from editors of feminine fashion papers who would rather illustrate with photographs than with sketches. The American papers have shown them the way. I went into the matter with one editress, and she explained what she wanted. There are, say, a dozen new fabrics for autumn wear. To make a sketch of a fabric which will tell a woman what it really is would be a heavy task for an artist. He can show the design of a piece of lace, but can do little more—that is, at a price.

But a photographer who knew his camera could make a negative of those fabrics which would be wonderfully like the original material. The lace, too, or embroidery, would be like the thing itself, instead of a mere plan design. These same papers are full of articles on the coiffure, fancy stitches, manicuring, how to set a table, how to arrange flowers, and a half hundred similar subjects. If a woman is interested in coiffure she will get that paper which, in a series of half a dozen photographs, shows clearly every detail of the procedure. A page showing nine photographs of girls, each crowned with a "latest creation" in hats, would attract more interest than a page of sketches. And some of the editors, who find a full hundred explanatory photographs in some American magazines, are awake to the advantage, and as they lead others will follow.

It may be that the work—at least, the exposure—will be done in many places, much of it at the editorial headquarters, much of it at various millinery shops. Perhaps the photographer will be required to find his own models—a dozen "hat" pictures would mean a dozen different pretty faces. More probably they will be procurable among the many girl employees of a fashion magazine, or from the shop-girls at the milliner's. It will not be straightforward work at first. The editress will know what she wants, and it will be the photographer's part to know how to do it. It will need to be very good technical work and yet it will often have to be put through quickly. The man will need to have his wits about him.

I have spoken about feminine magazines, for there an opening undoubtedly is. Other papers have similar openings in a smaller degree—when they find the right man.

He is not easily found, but if he turns up he will find, just at present, that there is room for him.—*British Journal of Photography.*

TRANSLATIONS AND ABSTRACTS FROM THE GERMAN.

BY HENRY T. WEED.

A METHOD for obtaining warmed-toned transparencies by making use of dichroatic fog is given in *Bull. Soc. Franc. Phot.* Lumière and Seyewetz have shown that dichroatic fog is due to the formation of colloidal silver. Making use of this fact, C. Fabre has found it possible by adding small quantities of colloidal silver to the developer to obtain warm-toned positives, a colored fog being obtained by development, which is cleared later. Fabre exposes the positive plate for a considerable time behind the negative. The longer the exposure, the more the resulting color tends to red or reddish-violet. For development he uses

Water	1000 c.c.
Hydrochinon	10 grams.
Sodium Sulphite cryst . .	150 grams.
Sodium Carbonate . . .	100 grams.
Ammonium Bromide . .	2 grams

If the plate has a tendency to fog with ordinary development, 10 grams of potassium bromide are also added.

The image appears with a beautiful dichroatic fog, the color of which is heightened by adding to the developer 1 to 5 drops of a solution of ½ gram dry silver chloride in 100 c.c. of ammonia. After fixing and washing, the plate is placed in a bath of

Water	1000 c c.
Potassium Permanganate .	0.5 gram.

and left until the colored fog has disappeared. To get rid of the precipitated manganese oxide the plate is then placed in

Water	500 c c.
Acid Sulphite Solution . .	500 c.c.

The image after this treatment is usually very clear and transparent. The fog can also be cleared by the use of Farmer's reducer.

ACCORDING to *Photograpische Industrie* old films may be utilized as follows: The emulsion is removed by washing in a hot solution of soda lye, and the celluloid

then well washed and dried. Solution in amyl acetate or aceton then gives a varnish that, according to its consistency, may be used either as a negative varnish, or as a paint for wood or paper dishes. For this last purpose it is recommended to use a saturated solution.

DR. C. STURENBURG gives in Eder's *Yearbook for 1904* an instructive account of the various effects obtainable with Farmer's hypo-ferricyanide reducer. He writes, "The ferricyanide reducer not only serves to reduce negatives and positives but to modify the character of the negative as well. In order, however, to use it for this latter purpose, a rational procedure must be followed in making it up, in which respect the directions usually given for compounding it fail completely. Farmer's reducer consists, as is well known, of a mixture of sodium thiosulphate (hypo-) and potassium-ferricyanide (red prussiate of potash). The chief result of my investigation is that the properties of the reducer depend not only on the concentration of the solutions, but on the acid, alkaline or neutral character of the bath. If the solution is neutral the reducer acts principally upon the more transparent parts of the image and therefore increases the contrast. If it is alkaline it acts upon the whole image. If it is acid it acts in the same way, only more slowly, the half-tones are well preserved and the veiled parts of the negative clear up. Attention must also be paid to the fact that the larger the proportion of hypo to ferricyanide the more general is its action, while an increase in the proportion of ferricyanide increases its action on the half-tones. For practical work the following solutions are recommended:

Solution I (neutral).

Water	1000 c.c.
Hypo	50 grams.

Solution II (alkaline).

Water	1000 c.c.
Hypo	50 grams.
Sodium Carbonate, Cryst	100 grams.

Solution III.

Water	500 c.c.
Potassium Ferricyanide	25 grams.

The acid solution is composed of 100 c.c. of the neutral solution, to which 10 c.c. of acetic acid is added. This must be prepared at the time of using, as it gradually decomposes.

These three solutions allow of the making of a reducer suitable for all purposes.

A. For negatives on glass or paper.

1. For the general reduction of negatives that are too dense.
2. For the clearing of negatives that are fogged because of too long development, over exposure or the use of an improper developer.
3. For modifying the character of a negative by first reducing it and then intensifying.

B. For positives on glass or paper.

1. For the general reduction of slides or bromide prints.
2. For clearing bromide prints that are grey or fogged because of over development.
3. For modifying the character of a print by first reducing and then intensifying with mercury, gold or platinum.
4. For local reduction, using a brush.

The composition of the reducer depends upon the case in hand. For A 1 and B 1, a mixture of 100 c.c. of solution II and 5 c.c. of solution III is used. The negative is laid in water until the film is wet through and then treated with this mixture until the desired effect is reached, then well washed. With paper prints it is advisable to dilute the solution with an equal volume of water.

For A 2 and B 2 use solution I, adding an amount of solution III, dependent on the amount of reduction necessary. Start with 5 c.c. of solution III to 100 c.c. of solution I, and add more cautiously if needed.

For A 3 and B 3 100 c.c. of solution I and 10 c.c. of solution III are mixed. By the addition of further amounts of solution III it is possible to obtain results that can be reached in no other way. The treatment is continued until the necessary clearness is obtained. The plate is then washed and intensified as usual. If gold intensification is to be used the well-washed plate is bleached in the following:

Water	1000 c.c.
Mercuric Chloride	20 grams.
Ammonium Chloride	50 grams.
Hydrochloric Acid, pure	8 c.c.

After washing well the plate is placed in

Water	500 c.c.
Ammonium Sulphocyanide	10 grams.
Gold Chloride (1:100)	30–50 c.c.

As soon as the image shows the required vigor it is washed and dried. In this way positives to be used in making enlarged negatives can be so modified in character that even from flat negatives strong enlargements may be made.

For local reduction with the brush, to 100 c.c. of solution I at least 10 c.c. of solution III is added.

For treating prints on bromide paper the treatment is the same as for negatives, but the dilution of the bath with at least its own bulk of water is recommended.

2. The developer must contain a solvent for bromide of silver. In order to avoid solution of the silver bromide before development is completed this solvent must not be present in too large a proportion.

An addition of 15 to 20 grams of ammonium chloride to each 100 c.c. of developer seems to be the best means of realizing the second condition. Ammonium chloride slightly dissolves the silver bromide of the sensitive coating and the developer contains therefore a mixture of a soluble silver salt and a reducing agent. Under these conditions the developer reduces the dissolved silver salt and the same conditions arise as in the development of wet collodion plates. Simultaneously with the ordinary chemical development a true physical development occurs. The negatives have the appearance of collodion images. It is of course necessary that an exact relationship exist between the rapidity of direct chemical development and the formation of reduced silver in the liquid.

Paraphenylenediamine and orthoamidophenol developers give images of fine grain without the addition of restrainers or of substances to dissolve silver bromide, and also give better images than other developers. This is true because the developers themselves fulfil the necessary conditions. That is, they have a weak developing power, and dissolve appreciable quantities of silver bromide. (The paraphenylenediamine developer dissolves 0.140 grams of silver bromide per 100 c.c., and the orthoamidophenol 0.134 grams per 100 c.c.)

If paramidophenol is used with the addition of sodium sulphite under the same conditions as its orthoisomer a fine grain does not result. The energy of the paramidophenol developer is however much greater than that of the orthoisomer. If its reducing power be lessened by the addition of ammonium chloride the resulting image has as fine a grain as in the case of orthoamidophenol.

The best developer for rapid plates which gives images of normal intensity and free from frog is the following. It is necessary that the exposure be full:

Paraphenylenediamine . .	10 grams
Anhydrous Sodium Sulphite .	60 "
Water	1000 c.c.

This method of development will be found of use in the case of negatives that are to be enlarged, since a very considerable enlargement can be employed without the grain becoming visible, and the half tones retain their gradations. With slow emulsions this new method of development should prove equally interesting, especially in the case of lantern slides, as by its use beautiful brownish-violet tones are produced which vary with the composition of the developer. Instead of the paraphenylenediamine a normal hydroquinone developer may also be used, to which has been added from 5 to 30 grams of ammonium chloride according to the tone which is desired.

IN the October number of this MAGAZINE, page 461, an account was published of some investigations that Lumière and Sewewetz had carried on upon the production of images of fine grain. These same investigators have now determined the exact conditions necessary for the production of images of fine grain. The following abstract is from the *Photo. Rundschau*, 1904, page 273:

Experiments with various commercial developers show that for the production of negatives of fine grain, two conditions must be simultaneously present.

1. The development must be slow. This may be attained either by the addition of a restraining substance, or by dilution of the developer.

PROF. J. M. EDER. *Jahrbuch für Photographie und Reproduktionstechnik für 1904.* Published by Wm. Knapp, Halle a. S., Germany. Price, 8 marks ($2.00).

This is the eighteenth volume of what is

probably the most complete review of the advance in photography published during the year. It contains in addition to the review of the various new things many original articles of much worth, one of which is published in this number. Twenty-nine prints, including several half-tones of three-color work, one after Prof. Miethe, embellish the volume. This number of the *Jahrbuch* is indispensable to all who can read German.

DR. GEORGE HAUBERRISZER gives in *Eder's Yearbook* for 1904 an improved method for the intensification of negatives by uranium. He attributes poor results to these causes:

1. Dirty dishes which have been already used for other work.
2. Imperfectly fixed negatives.
3. The presence of silver sulphide in the negative, caused either by imperfect fixing or by lack of cleanliness in working.
4. The presence of hypo due to insufficient washing.
5. The use of incorrectly compounded or exhausted uranium intensifier.

Sufficient attention is sometimes not paid to the purity of the chemicals used in preparing the uranium intensifier. Unless the ferricyanide used is perfectly free from ferrocyanide, the best results cannot be obtained. Not only is it necessary to use pure ferricyanide, but it must be protected from light since this reduces it to ferrocyanide. This change usually takes place superficially, so it is best to rinse the crystals with a small quantity of water before using them. The best results are obtained by using the following formula:

Uranium Nitrate (10 per cent. solution)	5 c.c.
Potassium Ferricyanide (10 per cent. solution)	10 c.c.
Glacial Acetic Acid	12 c.c.
Distilled Water	80 c.c.

The solution must be pure lemon in color, if it is brownish ferrocyanide is present. A perfect intensification with pure whites can only be obtained with freshly prepared solutions. The mixed intensifier is sensitive to light and quite rapidly becomes darker in color; it then gives less contrast and impure whites.

After intensification, washing for more than 10 to 15 minutes should be avoided, as long as washing removes much of the increased contrast. Should the wash-water be alkaline the addition of a few drops of acid to it is necessary. Should it be desired, the intensification may be completely removed by immersing the negative in dilute ammonia. Should after this, however, a reintensification be desired this cannot be done without first developing the plate with any good developer and then thoroughly washing.

Often, even after the most careful washing, especially with orthochromatic plates, spots form on the negatives while intensifying, the cause of which lies in some peculiarity of the plate itself. If the cause of these spots is not the presence of hypo, they may usually be entirely removed or at least much improved by immersing the intensified negative after washing in

Potassium Bichromate (10 per cent. solution)	10 c.c.
Water	100 c.c.
Concentrated Hydrochloric Acid, C. P.	3 c.c.

In this bath the negative bleaches completely. It is then well washed and developed with any active developer until the negative looked at from the glass side is seen to be completely darkened. It is then washed for 20 minutes, and intensified anew. The spots usually do not show at all.

It is still better in cases where the formation of spots is feared to bleach the negative in the acid bichromate solution before intensifying; develop, wash and then intensify. Negatives treated in this way will never give spots, even if without this treatment they would give imperfect results. Should a trace of hypo be present the bichromate will also destroy it. If varnished, uranium intensified negatives are fairly permanent.

PROF. RUDOLPH NAMIAS has been working on the problem of increasing the keeping qualities of sensitized bichromate tissues. He has worked with the alkaline acetates, succinates, tartrates, lactates and oxalates, usually in combination with sodium. By sensitizing carbon tissue in a bath containing in addition to 3 per cent. bichromate from 2 to 3 per cent. of various salts he found many of them to be without any influence, as the acetates and succinates. The tissue showed after keeping for some

days a somewhat darker color than the normal paper, but on developing no difference could be seen. The addition of tartrates and lactates not only did not increase the keeping qualities of the paper, but shortened the time during which the gelatine remained soluble. The lactates possibly might find use, as they increase sensitiveness. The neutral oxalates and especially the neutral citrates, on the other hand, increase the keeping quality of the paper markedly. Carbon tissue sensitized with the addition of these salts, even after keeping for a month, retained its solubility, and after keeping for two months still remained useable. Tissue containing citrates showed after a month a scarcely noticeable change, while that prepared with oxalates, while it had darkened a little, showed itself perfectly soluble.

These facts may be made use of in carbon printing by substituting the bath given below for the usual one:

Potassium Bichromate	20 grams.
Citric Acid	10 grams.
Water	1000 c.c.
Ammonia in slight excess.	

Paper sensitized in this bath will be found to remain soluble much longer than usual, and to be satisfactory in quality.

DRY *VERSUS* WET LIGHT-FILTERS.

SINCE the introduction of the three-color process, light-filters have come largely into use, and form one of the most important implements of the process-photographer. These color-filters have several forms:—

1. *Glass tanks*—or as the Continental workers, who were the first to introduce them, call them, "cuvettes"—consist of two optically flat pieces of white glass, of same thickness, either cut round or square, and between them a glass ring, which may be best described as a horizontal section through a cylinder. The margins of this glass ring form each an absolutely level surface, and are ground smoothly in order to keep the cementing which binds the ring to the glass plates. At one place in the ring is an opening, either square or round, cut either like a pyramidal or conical section, slanting inwards; or better still, two of such openings. These are closed by close-fitting India-rubber or glass stoppers. These openings serve for filling and removing the dye solution.

The glass tanks are very expensive, and it is for this reason mainly that they have come very little into use. If for three-color work only one tank is at the disposal of the operator, the emptying and scrupulous cleaning and refilling of such a tank occupies much time. It is, therefore, necessary, for the purpose of having a reserve in case of some accident, to have two tanks at least, unless three tanks, each always for the same dye, can be obtained. The more tanks, however, the greater their individual price, as they ought all to be made from the same substance of glass, and of exactly the same thickness. Any variation must invariably result in a difference of size in the set of negatives. These tanks, with their comparative ease of altering the solutions when necessary, form the most convenient apparatus for the scientific and careful worker. One of the greatest advantages in their use is, that they can be used for aqueous as well as for spirituous solutions.

The solutions contained in these tanks have, however, often to be controlled and renewed, especially if continually left in these tanks, because they suffer not only from the transmitted light, but also from the varying temperature; and if a strong or saturated solution has been employed, most dyes are certain to crystallize on the glasses. These fluid color-filters are the easiest to prepare and to alter while being tested, an advantage which places them high above the dry-filters. Their heavy weight, however, when fitted in front of lens or prism, tells greatly; and with the weight of lens the prism or mirror is exercising a strain on the front of the camera, which has carefully to be controlled on this point.

2. *Square glass plates* to be used in front or behind the lens or prism. Two absolutely flat glass plates, of same size, are cut out of the same piece of glass. The

dye or dyes are dissolved in alcohol or ether, or a mixture of both, according to the solubility of the dye, and added to collodion. Each plate is coated as a wet plate is prepared, and, after drying, the plates are examined by means of a spectroscope. When the desirable shade of color is obtained, they are warmed slowly on a hot plate. Some drops of Canada balsam are put on the two plates, and then they are pressed together in a rotating movement, under ever-increasing pressure, till the superfluous Canada balsam is squeezed out. Under some heavy weight the filter is left till dry.

In this way the three different color-filters are prepared, and to coat them evenly, without any air-bubbles, specks, dust-spots and other faults, is a very difficult matter. The filter which generally gives the most trouble is the green, because the dyes used for it generally form a sediment. All filters change their color quickly, if not kept dark when not in use; and even there a fading of these very fugitive dyes can be noticed, as well as a crystallizing effect which spoils their efficiency.

These filters can be used either in front or behind the lens or prism, and are fixed so close to it that no white light can pass except through the filter.

3. Much easier is the preparation of such square glass plates, if coated with gelatine like a collotype plate and dyed afterwards by soaking in a solution. The color, will, however, appear darkened, because the gelatine film is not so transparent and thin as a collodion film. Besides this, the gelatine forms a thicker margin all around the plate, and in this more dye is accumulated than in the centre. Also the use of these gelatine-filters is restricted to aqueous solutions of dyes.

The three kinds of light-filters above described are only for lenses which are corrected for chromatic aberration. Should they be used for others, the result, arising from the difference between optical and chromatic foci, would give one sharp and two unsharp negatives.

Therefore the employment of large light-filters is recommended, which are placed in front of and quite close to the photographic plate. Their preparation is naturally much more difficult than the preparation of the smaller ones described above, and they have often to be renewed, because on account of their size they are subjected to more accidents than the small ones.

Even tanks of such large sizes have been constructed, but they are very unpractical on account of their weight, leakage, and greater density of dye in the bottom part.

Every operator should prepare his own filters, especially as the color-filters which are for sale are mostly incorrect, and their glass is of inferior quality. At the present time, the operator knows the necessity of a spectroscope, and if once in possession of such an instrument, he will naturally prefer to improve on his filters, till he has reached the acme of perfection.—*The Process Protogram.*

Wooden trays may be made perfectly water-tight by applying three coats of the following:

Asphalt	3 ounces.
Pure India-rubber	30 grains.
Mineral Naphtha	5 ounces.

Allow the trays to dry thoroughly between the application of the second and third coats. Care should be taken to keep this solution away from a flame, the safest way is to use it out of doors.

The following method for obtaining brown tones on bromide prints is recommended. Wash the print well after fixing and immerse in a bath of

Tincture of Iodine	1 ounce.
Water to	10 ounces.

till the image is bleached a yellowish-white. It matters not if the paper turns a deep blue. After a thorough washing, place the print in a 10 per cent. solution of sodium sulphite until the paper becomes white. Wash for ten minutes and immerse in

Sodium Sulphide (not sulphite)	¼ ounce.
Water	10 ounces.

After which wash well and dry. The shorter the time the print soaks in the iodine bath the blacker the color and *vice versa*. The iodine bath may be used repeatedly.

CONTROL IN PHOTOGRAPHIC PRINTING. A NEW DEPARTURE.

BY NELSON K. CHERRILL.

In a lecture recently delivered before the Camera Club of London, and reprinted from the *Journal* of the club, the lecturer said that his subject was a large one, and one that might well be treated from many points of view. It would be interesting to trace the matter of control in photographic printing historically—to show the gradual advance of the idea, from its first dawning upon the minds of some earnest workers that some modification of the strictly photographic image, some change of value, some suppression of detail, or some accentuation of light or shade might be advisable from an artistic point of view. Time was when any attempt in this direction, when any suggestion even of controlling in any way the strictly photographic transcript, was called by a very unpleasant name, but times had changed, and now it seemed that a man was recognized as a master of his craft almost in direct proportion to the extent to which he could exercise control in his work—always *bien entendu* that his endeavors were made in the direction of artistic excellence.

He had, however, nothing to do with the historical, and not much to do with the artistic, side of the matter that night. It was his only to deal with the subject as a means to an end. He believed he was going to place in their hands what was practically a new power in photographic printing, but he would leave the application of it, in its wider sense, to the judgment and experience of others.

There were, to his view of the matter, two different kinds of control which could be made use of in photography. One was a fixed control, and the other a variable or progressive control. The former, however great might be its value when in operation, had a final and fixed effect, which was no longer capable of variation. But in what he called variable or progressive control there was no fixed limit beyond which it was impossible to go. It was of such a control that he wished to speak that evening.

The system he had to show depended in its essence on a perfect system of register. The old form of printing frame, in which half the paper was held down firmly on the negative while the other half was being examined, gave a quite perfect register so far as it went, but it was useless for any case in which any extended control was desired, from the simple fact that neither the print nor the negative could be got at during the printing operation.

The first problem, then, to be solved was to make a printing frame which would admit of the negative and the print being separated, and the negative removed altogether from the frame, with perfect facility of putting them back again into position in such a manner that there should be no suspicion of any want of perfect register. Many as had been the attempts to realize a perfect register, he had never seen any system suggested which bore, on the face of it, a real chance of success.

To form a perfect register we must have three points of contact, and three only. All attempts to use more than these led, not only to uncertainty, but to actual error. The final result of his (the lecturer's) experiments to determine the best arrangement for these necessary points of contact was, in brief, that the three points were best obtained with only two pins.

He arrived at the three points of contact by making the pins of a certain considerable stoutness, and by using a V-shaped notch for two of the points of contact and a straight edge for the other. By means of a diagram, the lecturer showed the plate resting on two pins, one of them sitting in a V-shaped notch and the other resting against the side of the plate. A moment's reflection would show that, provided the pins were rigid, such an arrangement gave, not only a perfect register, but gave it at one movement, which in practice was a very important matter. Where three pins were used it was evident that two movements of the plate were needed. This double movement was in itself a suf-

ficient source of error to render the whole arrangement worthless from a mechanical point of view, and, besides, the register was only obtained in such a case by seeing, whereas, when the movement was a single one, the result was known to be obtained by feeling, which was, for such a purpose, the more certain sense of the two.

There was one very important practical outcome of this arrangement which he would like to explain. If the pin on the straight edge be moved a little to the right or the left no difference would be made in the register. Hence it was evident that if several registers were made with only moderate accuracy as to the distance the pins were from one another, all plates which fitted one would fit another. Thus frames made on the principle he had just explained were fully interchangeable, and a print begun in one frame might be finished in any other without any risk of the register not fitting.

In showing how the principle on which the true register was based was carried into practice, the lecturer said that the printing frame, in what he believed to be its final form, was merely a frame of wood enclosing a glass plate. On one side of it were two rigid cylindrical steel pins to form the register, at each end was a brass hook to hold the back, and between the pins was a simple spring clip, which was a great convenience in holding whatever was placed in the register. The back of the frame consisted of a rigid board like a drawing board; it was covered with soft felt or flannel on the inside, and over this was spread a layer of India-rubber sheeting, which was tightly stretched over the felt pad. The back of the frame was provided with suitable springs for ensuring pressure in the usual manner, and there were also the register notch and straight edge, which, as they were to be permanent, were made in brass.

The next thing was to see the method of fixing the negative and prepared paper in the frame. As it was evident that a V-shaped notch could not be cut in a glass negative, some kind of frame or support must, in most cases, be used. The simplest form he had found was a frame made in very thin metal, as aluminum. If the negative be a film, the best way to support it was on a sheet of celluloid. Whatever form be adopted, he found the best mode of fixing the negative was to use strips of adhesive plaster. In a paper frame these might be glued round the opening, sticky side up; or in a metal frame they might be applied over the edges of the negatives, to which they at once adhered. Alcock's porous plaster was the best material he knew of for this purpose.

Over the back of the frame was brushed a little solution of India-rubber in benzole; this, being on a non-absorbent base, never dried, but remained always more or less tacky. By this means the printing paper was, as it were, mounted on the back of the frame, but, though mounted, it came away in a moment when the print was finished, and the frame back, once prepared, lasted quite a long time in good condition.

How did such a printing frame aid in control printing? In the first place, such a frame gave, in a very remarkable degree, a control over the focal definition of a picture. The plan he proposed in order to reduce the excessive sharpness and painfully-cut detail so often obtained with the high-class lenses now in general use was to print for part of the time through a certain thickness of transparent medium, such, for instance, as a sheet of celluloid, and for the remainder of the time in direct contact with the negative. Such an arrangement, by giving a mixture between fuzziness and clearness, seemed to him of considerable value. The fact that the register pins in the frame were vertical ensured the print being always vertically over the negative, and, even if it did not touch it, it was always in perfect register with it. There was no need to confine oneself to two printings, nor was it necessary to print for any part of the time in direct contact with the negative. An excellent effect could be produced by printing through several different thicknesses of celluloid.

But this was not all. It was manifest that for pictorial work it might very often be desirable to increase the diffusion of the image only in some parts. This effect might be produced without difficulty by the employment of a pair of masks. If he were to cut out any shaped opening in a sheet of black paper, doing this with a

sharp, clean-cutting knife, the interior and exterior would form an exact pair, so that by placing the one on one mask and the other in register on another, they would, when both placed in a frame together, form the exact counterpart one of another. This being so, it was easy to see that by employing them alternately one could print with greater diffusion while one of them was in use, and less or none at all with the other.

Turning to the question of values, the lecturer said there were several cases, or classes of cases, in which values might be successfully controlled by this frame. The first with which he would deal was that of lightening some portion of the print, by which he meant making it lighter in proportion to what it would be in an uncontrollable print. So far as he knew, there were only two plans in practical use—one was "working on the negative," and the other "shading."

With regard to the first of these, "working on the negative" was either on its face or on its back. When part of a print came out too dark he thought that at present the most commonly adopted plan was to work in some way on the back of the negative. In this case there was a great fault and a great difficulty to contend against. The fault was that the result when done only amounted to a fixed control. What was done on the back of the negative became in effect part and parcel of the negative. The difficulty arose from the fact that the ultimate value of the part operated upon was the resultant of the retoucher's work, plus the deposit on the negative, and it was no easy matter to get in the result the exact effect aimed at.

In working with this new printing frame, however, a totally different method was adopted. To reduce any part of a print to a lighter tone, no delicate nor gradated work was needed. The part to be reduced was simply blocked entirely out. This was done by means of a transparent mask made of thin celluloid, which could be painted over on the parts to be controlled. Such a mask was placed in register over the negative. The part to be operated upon was then painted boldly out with a non-actinic water-color paint (he preferred burnt Siènna for the purpose). When the painting was dry the position of the mask might then be reversed—that was, placed behind the negative—and the printing commenced. The print would come out with a simple white patch for the part to be lightened. When, however, the printing had gone to a certain length, one opened the frame, and, removing the mask, continued the printing with the negative only. Thus those parts which were to be made lighter, and which up to the time of discarding the mask were being represented by only a patch of white paper, would now begin to print in a natural way from the negative; only, as they began the race so much later than the remainder of the print, they would come out in the end by so much lighter than they would have done in the ordinary course of things.

This plan of work put a vast power into the hands of the operator, because it was evident that the work could be varied at will, and changed to almost any extent during its progress. The process might be varied by commencing the print without any mask and adding a mask as the work went on so as to hold back some part of the print. In this way any part that was seen to be getting too dark might be stopped in altogether the same manner, so that in this system they had what he had called "progressive control," which could be carried to any extent, limited only by the desire and skill of the operator.

Certainly the method was vastly more elastic than the old system of backing the negative. But there was no necessity for the operator to be tied by any hard and fast rule. If need be, edges might be softened and the tint might be gradated, and all sorts of cunning effects of doing a little more in one place than in another might be carried out according to the skill of the artist, who had at all times the confident feeling that nothing need go far wrong, as, at the least sign of error in his work, he could change or vary his mask at pleasure.

The lecturer then proceeded to consider the rendering of some parts of the print darker than they would have been. The plan, as he explained it, was simply to employ the reverse of the mask used in the first instance. He used a colored mask, from which the color might be removed in

places by scraping—the general tint of the mask being uniform, and not too dense, the negative printed slightly through it all over, but much more decidedly in those parts where the tint had been scratched away. The parts operated on came out as black patches—or would do so were the printing continued long enough with the mask—but when the effect was deemed sufficient the mask was discarded and the printing continued, as before, with the negative alone. The effect of this was to bring the remainder of the print to a normal depth, but the darker parts, having got a start, kept it, and so came out darker in the end.

These two cases of control might be combined in any varying degree, so that, by them, the entire gamut of tones in a picture was placed at the disposal of the artist, to change or modify it in any manner he pleased. One of the most convenient ways of doing this was to select a tinted mask of a suitable tone, and, while scraping some parts to give it darks, other parts might be blocked out to give lighter parts, so that both operations might be carried on simultaneously.

The mask might be made by pouring collodion, tinted with a suitable coloring matter, upon a glass plate, and then taking it off on a film of gelatine, in the manner used in Burgess's Ebumeum process. By using a powdery collodion, the film could readily be brought into such a state that it would "take" work with an etching needle. This opened the door to an altogether new kind of work. There would be no difficulty, beyond that of artistic manipulation, in making a kind of combination between a line etching and a photographic print. For the etching lines, which could be worked on the mask by a needle, could be printed into the photograph just with as much, or with as little, force as might be deemed most suitable to the work in hand.

The lecturer then proceeded to explain the application of the frame to the production of soft prints from hard negatives. To do this a mask of a rather more complicated nature was needed. If one attempted to prepare a mask that should, to a great degree, rectify the errors of those negatives which suffered from being too dense at one end of the scale, one would find in effect that the mask, looked at by itself, would be roughly a transparent positive of the subject. And as such a transparency could be made with perfect ease and very quickly by photographic means, it would be mere folly to attempt anything of the kind with the brush. The advantages of using this frame were that there was no need for any exact relation between the densities of the positive and the negative, and no attempt was made to secure any such relationship. All that was needed was that the transparency should be sufficiently dense in its dark parts and sufficiently clear in its light parts. To correct, for the best, a hard negative, one wanted a bad, hard positive. But any transparent positive would do good, though it might not produce the best effect.

It was generally supposed that printing from a negative in conjunction with a positive would produce only an even tint without any gradation of tone, and this was no doubt the case if the two were the exact counterparts the one of the other. But he was supposing the case of a hard negative—one in which the shadows were too clear and the lights too dense. If to such a negative was conjoined a bad, hard positive—one in which the dark parts were too dark and the lights clear film—it would be seen at once that in printing such a combination the light, penetrating the clear parts of the positive, would cause the high lights of the negative to print out, whereas the shadows of the negative would, from the opposite cause, be held back, and would either remain unprinted altogether, or would be slightly impressed, according to circumstances. When, by this treatment, the lights of the negative were deemed sufficiently advanced, the positive mask could be discarded, and the darks of the negative printed in to any desired depth, the result being a print which might be as soft as desired, no matter what the hardness or crudity of the original negative.

The effect of softening hard negatives by means of a transparent positive had its exact counterpart in the hardening of such negatives as were too soft, that was, not dense enough to give by themselves a good result. To do this, it was merely

necessary to conjoin with the negative, not this time a positive, but a second negative. The second negative acted, in fact, the part of a mechanical intensification of the image, but always subject to the same power of control which we had in the last case, only, of course, in the opposite direction. By this means the control was absolute. It was limited only on the one hand by the weakness of the original negative, and on the other by the limits to strength which the good taste of the artist would forbid him to overstep.

After pointing out the very valuable softening of the image, especially in portraiture, which resulted from working with negative and positive together, the lecturer went on to speak of the preparation of the masks. The simple painted mask used in the first case, he said, was merely a piece of celluloid. The negative masks were made by exposing a slow film in contact with the negative and developing in the ordinary way. An excellent transparency could be made by simply squeegeeing wet carbon tissue as it came out of the sensitizing bath on to celluloid; it should then be placed between blotting paper and be given a nip in a screw press. After five minutes or less, the face of the celluloid might be cleaned with a wet rag and wiped dry with a cloth. In this state the tissue might be immediately exposed under the negative; the celluloid, being impervious to water, absolutely protected the film, and a sheet of any kind of waterproof material placed behind the tissue saved the printing frame from injury. After a suitable exposure, the tissue on its celluloid support was thrown into hot water, and the development took place very rapidly; rinsed and hung up to dry in a current of air, such a transparency might be out printing within an hour from the time of its commencement.

Returning to the subject in hand, the lecturer said that his idea of control was to alter the things already existent in the negative. Such an effect could, he claimed be produced by the frame he had been showing, and that in a very simple manner.

If we began printing with a negative, and if, after a time, we changed the negative for a positive and continued our printing, using the positive as if it were a negative, we filled up the lights with darks, so that, if the process be carried far enough, the result would be, not an image at all, but a mere blank of color or tone; but on stopping the effect at any point short of this, we could obtain a simplification of the most perfect kind, wholly photographic in character, and, as it seemed to him, of the greatest value to the art photographer.

As regarded what was called "sunning down," the effect with the frame was easy and certain, and no complication of outline caused the smallest difficulty. All that was necessary was to place a transparent positive in register with the print, and then to sun down as much as might be desired.

Finally, he referred to three interesting points. The first was combination prints. The fact that the register could be carried from frame to frame rendered this kind of printing very easy of accomplishment, inasmuch as the component parts of the work could be set up in as many frames as might be necessary, and the print simply taken from the one to the other. Secondly, for those who considered gum bichromate as the only possible process for artistic work, this frame offered an advantage in its perfect register for repeated printings, which, it seemed to him, could hardly be better arranged for. Thirdly, it seemed too trivial to mention that every kind of border—tinting, shading, title printing, and all that kind of extraneous ornament —could be carried out with an absolute precision that left nothing to be desired.

If, to these items, he threw in the obvious application of so perfect a system of register to three-color printing, and if he suggested that the same ideas and methods of work as he had shown to be available for contact printing could manifestly be well employed for camera printing, whether for enlargements or for making lantern slides, he thought he should have said enough by way of introduction to his invention. In conclusion, he expressed the hope that the system he had shown would not be without its effect in raising art photography to a still higher level than it had already attained, and that it might prove of effectual assistance in driving back those barriers of limitation which had ever been the besetment of the pictorial worker.

A NEEDLESS LIMITATION IN PHOTOGRAPHY.

BY W. I. SCANDLIN.

THERE seems to be developing in this country a growing tendency on the part of the public to limit the seasons during which they give any attention to the important matter of photographic sittings. This subject *is* important, not only from the viewpoint of the photographer, who is dependent upon it for his living, but of extreme importance to the public itself, who do not seem to realize the necessity of frequently visiting the studio for the purpose of securing for their children and their children's children such photographic records as alone will serve to show those coming after them of what nature of man or woman he or she was. How often does it not happen that death or accident comes unannounced, removing some member of a family who, when search is made, is found to have left behind no portrait at all, or one so old as not to be a likeness to those familiar with his features in the later years? The keen regret that follows such neglect is known only to two classes of people, the friends that are left behind to mourn the loved one and the photographer who is almost every day brought face to face with the impossibility of doing justice to the subject by enlarging some old-time faded print or scratched and battered tintype. Time was, and not so long ago, comparatively, when such omission to leave behind a recent portrait was excusable on the part of many. The cost and difficulty that confronted our fathers and mothers has, however, been made almost *nil*, and when we stop to think how much real pleasure the average man or woman receives when the postman delivers the dozen or more prints from the photographic studio, it seems almost unaccountable that the sittings are not repeated and re-repeated with far greater frequency than they are.

In many communities it is coming to be a rule that the photographer may safely count upon a fair share of trade just before the Christmas holidays, and again for a few weeks in the early spring.

In some of these communities, however, he may as well close up his place the balance of the year so far as any profit is concerned. He may, at most, pay part of his expenses, but scarcely more. The fault in most such cases may be rightly laid at the photographer's own door. He has failed to keep his constituency keyed up to the thought that photography has no "seasons"—that it is one of the prime essentials in a community of intelligent men and women that they should be inoculated with the "photographic habit." This habit should be cultivated and indulged in at all seasons of the year. Teach your public to feel and to believe that when its young or middle-aged man feels himself in fittest trim, his health and spirits good, and all that's best within him seems bound to assert itself in every pose and feature, it is *then* that he should sit for a portrait. Impress upon the public mind the thought that the sitting for a photograph is but the veriest pleasure to the sitter. It is the photographer only who has any right to feel that the skylight is an operating-room. Make it clear to the young mothers of families and to the elder matrons that with the rapid and subtle changes of childhood and youth many of the most delightful phases of the boy and girl lives are totally and hopelessly lost, even to memory, unless perpetuated by photographic record *while they exist*.

Instead of tacitly accepting the conditions as they seem to exist, each year shortening the two, already too short, photographic seasons, combat earnestly, unceasingly, and believingly the idea that any limitation should be put upon the time of year or season for being photographed.

The thinking photographer who puts his conscience into his work has a right to feel that he is doing a lasting service to every man, woman, and child sitting before his camera. He is giving to them, in his finished work, a portion of himself. He is making for them, and of them, pictorial records for posterity to study, and into these records he is crowding as

much or as little as he may of the really beautiful and good in the sitter. These attributes are not worn lightly on the sleeve of man or woman, they must be drawn from the inner consciousness of the sitter by the masterly skill and ability of the man behind the camera. The man, I say, who has this skill, and who, possessing it, puts it at the service of his sitters, has a right to expect and should claim their support.

Such a man should, and, fortunately, a few of them do, realize that in keeping himself constantly in the mind of the public he is rendering it a service for which its well-earned dollars no more than pay.

What more sacred and delightful mission can be conceived than that which lies within the grasp of him endowed with the peculiar power of photographing children? A man so gifted owes it to the world that it should know of him. He places in the mother's hands those tangible, pictorial records of her dearest jewels, that without his aid would ever be but dim and dimmer growing memories, dear to herself but not to be enjoyed or shared with others in all time to come.

Such men should force their work, if need be, on the public mind. They should assert their right to live and to live profitably by the exercise of their peculiar skill in the production of that for which in every community of any size there ought always to be found an ever increasing demand.

If the photographer will strengthen himself with this thought and with the realization that he has a mission to perform he will find himself met half way. Having demonstrated his ability to perform, he must, however, modestly, but earnestly and forcibly, make his public aware of his presence and familiar with his name. He *must* have publicity. When he has found the proper channels he will discover that there are no "seasons" in his studio. There will be times when, for one reason or another, he will be more than usually crowded with orders, but the long weeks and months of "fallow season" that now characterize so many studios will not trouble him. Publicity of one kind or another is the bridge upon which he will cross the gulf that separates him from a better prosperity. There are many methods of publicity. Which will he adopt for the abolishment of this limitation of "seasons" in photography?

DR. KOENIG'S COLOR PROCESS.

THE following valuable lecture delivered by Dr. Koenig before the German Naturalists' Congress, Breslau, on Semptember 21st last, is translated by Mr. Jules Fuerst and reprinted from the *British Journal of Photography*.—[ED. W. P. M.]

Whilst the Leuko bases of some classes of organic coloring matter,—*i.e.*, of Safranines are so unstable that it is not possible to isolate them, others like the Leuko malachite green are, as is well known, easily prepared in a pure state, and are comparatively constant when exposed to air. Many chemists have probably observed that these most constant Leuko bases, when kept for a long time, will color strongly only when exposed to light. Careful researches about the light-sensitiveness of the Leuko bases have only been made by Gros, in Ostwald's Laboratory, who examined especially the Leuko compounds, of fluorescein and its substitutes. He found that Leuko compounds, roughly prepared, are nearly all more or less sensitive to light and measured the oxygen absorbed on exposure to light of the water solutions of Leuko bases,—*i.e.*, their salts.

Nobody else seems to have worked in this direction or to have thought of using the Leuko bases for making photographic images.

Before I start on my subject I will touch in a few words on a purely photographic subject. I presume the principle of three color photography, as known, viz., of the object to be photographed three part-negatives are made, of which one, when copying, renders only the blue, the second, the red, and the third, the yellow parts of the object. The production of such negatives

is comparatively simple, and the principal reason why three color photography (which for the graphic industries is of greatest importance) has not yet found use in photographic practice is on account of want of a suitable copying process. I will not detain you by enumerating the various copying processes, but would only say shortly that all methods used hitherto base on the light sensitiveness of gelatine saturated with bichromates, be it by copying on to colored pigment paper, or be it by coloring colorless gelatine images with organic colors. The three monochromatic part-negatives which have been got by one of the methods mentioned, are joined into one image, which then renders all the color shades of the original. Undoubtedly in this way very nice three-color images can be obtained, but their production is so difficult that only a few people can produce acceptable colored paper images. Not the smallest disadvantage of the old methods is the impossibility to follow the progress of the copying process ocularly.

An ideal copying process for three color photography would undoubtedly be one where neither coloring takes place, nor where copies are made on colored paper, but which works only with colorless layers which when exposed to light will, according to their previous preparation, color directly yellow, red, or blue.

To find such a process we in the Photo-Chemical Laboratory of the Farbwerke Meister, Lucius and Bruning, Hoechst a/M, carefully examined into the most different Leuko-bases, but soon began to see that the Leuko bases by themselves on exposure to light are not capable of giving sufficiently vigorous and brilliant images. We then supported the Leuko bases by a layer of acetylhydrocellulose, or gelatine, but our hope to obtain thus more vigorous images was not realized.

Only when we chose collodion as image carrier, we suddenly observed a marvellous step forward in light sensitiveness. Leuko bases which were exposed to light for hours by themselves, gave only a faint coloration, but were vigorously oxydized in presence of collodion in a short time. Other Leuko bases which for themselves were so light sensitive that on fairly long exposure under a negative they gave a distinct, although weak and photographically useless image, colored in the collodion film rapidly and intensively.

We soon concluded here that collodion could not act as a mere image carrier, and, in fact, it soon showed itself that the Leuko bases were oxydized on exposure to light at the expense of the nitric acid groups of nitrocellulose. We then examined a great many other bodies, and found that, similar to nitrocellulose, all nitric acid esters, especially those of the higher alcohols reacted. On the other hand, the nitrous acid esters and isomeric nitro compounds of the aliphatic aromatic series are ineffective. The nitrosamines show similar, although weaker, effects than the nitric acid esters.

It is interesting to know that the light sensitiveness of mixture of nitrocellulose and Leuko bases can be diminished considerably by the addition of urea or antipyrin. This observation seems to point to the fact that the Leuko bodies are actually oxydized by NO or NO_2 groups which dissociate out of the collodion.

Addition of turpentine or aniseed oil, which are looked upon as oxygen carriers, do not or hardly accelerate the production of light images. But when we once added to the solution of Leuko bodies in collodion various organic bases with the intention of preventing a small air oxydation occurring in some Leuko bodies, we observed with astonishment the films (layers) containing chinolin and its homologues, increased again extraordinarily in their light sensitiveness. An explanation of this curious phenomenon cannot be given. It is even very remarkable that more vigorous pictures should be obtained with chinolin bases than without, because it should be expected that the addition of a strong base would rather prevent the formation of coloring matter, as it is well known that the salts only of the color bases are colored. In this picture you see clearly the influence of chinolin which, moreover, is principally effective with the Leuko bases of the blue and green triphenylmethan colors.

Nitrocellulose is not by any means the most effective of the above-mentioned compounds, but it is only specially suitable for the production of pictures because it

produces at the same time the layer (film) that is destined to carry the pictures. Still more sensitive to light are the mixtures of Leuko bases with the nitric acid esters of glycerine, glucose, and mannite.

For instance, if a piece of blotting paper be saturated with an ether solution, say of Leuko malachite green or Leuko flavanilin, it barely colors with a short exposure, but if some nitromannite be added to the solution the paper exposed to light colors intensely and rapidly. The light-sensitiveness of mixtures of Leuko bases and nitrocellulose can be increased quite extraordinarily by the addition of nitromannite. You see here two pictures, of which one is much more vigorous than the other. The exposure in both was twenty seconds. The light sensitive film consisted of nitro-cellulose, Leukosetocyanine (o-Chlortetraaethyldiamidotriphenylmethan), and chinolin. To the film for the first picture a small quantity of nitromannite was added.

I would repeatedly observe that it is quite impossible to produce approximately useful photographic images with Leuko bases alone, or with Leuko bases which are carried by indifferent films. Copies will result always flat and without vigor, the oxydation of the Leuko bases in light through the oxygen in the air seems soon to reach a maximum long before the entire quantity of the Leuko base is oxydized.

Also bodies which are not so-called Leuko bases in the ordinary sense are oxydized by the light into colors in the presence of the repeatedly named nitric acid esters, as, for instance, the p-amidodiphenylamin. This base is known to be much used in calico printing for oxydation black, and gives when mixed with collodion or similar bodies and coated on paper strongly colored pictures, when exposed to light in a very short time.

Blue images can be made by means of o-Chlortetraaethlydiamidotriphenylmethan green images with Leukomalachite green, with m-nitro or m-amidotetraaethyldiamidotriphenylmethan, red images with p-Leukoanilin or Leukohodamines, violet images with Hexamethylparaleukanilin, yellow images with Leukofluorescin and Leukoflavanilin.

The fixing of the images gave great difficulty to begin with. Some Leuko bases can be dissociated from the collodion film with benzole, toluol, ether, or chloroform, but such means of fixing are not useful in practice. The nearest fixing mediums were diluted mineral acids, in which nearly all Leuko bases are easily dissolved. Nevertheless, the images could not be so fixed because the Leuko bases as well as colors show a certain tenacity to nitrocellulose and kept very fast under certain circumstances. Better results were obtained in fixing with diluted organic acids, and finally it was found that the monochloracetic acid was the best fixing medium for nearly all Leuko bases; acetic acid, di- and tri-chloracetic acid cannot be used.

Gros has already examined the behavior of Leuko bases against multicolored light, and "roughly," as he says, he found that with most Leuko bases a maximum appears when illuminated with complementary colored light. Gros obtained with all Leuko bases the weakest effect under red glass, the strongest under "pink" ("Rosa"). We exposed the various sensitive films under color filters, as used for the additive process of three-color photography, and it was found that the exposed strips produce under the complimentary colored filter a maximum, and under equally colored a minimum of intensity. Thus, blue, green, and violet is colored strongly under red and yellow but scarcely under blue, whereas red under green and yellow filter is colored very strongly, under blue little, and under red not at all. Finally, yellow under blue is colored very strongly but scarcely under yellow. For information, we show here a strip of celloidin paper which naturally shows the strongest black coloration under blue.

The strong action of the so-called non-actinic red on the blue and green light-sensitive films is very interesting.

Ostwald has already shown that the action of light on photographic preparations is not a peculiar one, that light really only accelerates effects which take place themselves after a considerable time even when light is excluded. Thus, as is well known, photographic plates and papers are decomposed when kept for a long time even in the dark, and especially rapidly the light-sensitive gelatine when mixed with bichromate. With our new light-sensitive films

it is the same thing. The effect produced by light in a few seconds or minutes takes place in the dark after hours, days or weeks, as the case may be, and the most light-sensitive films are also in the dark the least permanent, so that they must always be prepared only shortly before use. I wish, however, to observe that even when kept a long time in the dark the films are never colored so deeply as they are in a short time on exposure to light.

The application of these observations for three-color photography is therefore to be summed up in the following manner:— A piece of paper is coated with blue collodion and exposed to light under the corresponding part-negative. When it appears sufficiently vigorous it is fixed in a 10 per cent. solution of chloracetic acid, washed and coated with a thin, hardened gelatine film, and then dried. The gelatine film serves to protect the first collodion film from dissolution when coating the second. The dry blue image is then coated with red collodion and the corresponding part-negative is placed in such a manner that the contours of the negative register exactly with those of the blue image. Again expose to light, fix, wash, and produce finally in quite the same manner the yellow image. On account of the perfect transparency of the extremely thin films and on account of the brilliancy of the colors used the copies appear very uniform, and the shaded colors especially show with great effect. The quantity of Leuko base, as used, is very small, in consequence of the enormous expansiveness of triphenylmethan dyes, so that a picture made in three layers is no more expensive than an ordinary gelatine or pigment print.

The light permanency of the pictures is, of course, not absolute, though relatively fast colors are used for making the part-pictures. The least fast is the blue, which, however, exceeds in permanency the so-called cyanotype (iron-blue prints). Considering the difficulties encountered up till now when copying from three-color negatives the new direct copying process of the Hoechst ter Farwerke to be known as "Pinachromy" may be chronicled as an extraordinary improvement. As is well known, colored diapositives have been easily made, but three-color photography could not become popular so long as it was not possible to produce in a simple way white paper pictures (positives). This, we believe, our copying process affords, even for the mere amateur, and will, we hope, contribute to give new life to the somewhat stale interest in photography.

INSTRUCTIONS FOR "PINACHROMY" FOR PRODUCING COLORED PHOTOGRAPHS (POSITIVES).

This copying process is based on the oxydation into colors by exposure to light, of colorless Leuko bases in the presence of certain substances like collodion or other nitric acid esters.

The main substance for all three preparations is a

1.5 per cent. collodion, made, for instance, by mixing
1 litre of a 3 per cent. commercial raw collodion
with
500 c.cm. alcohol, and
500 c.cm. ether.

When using 2 per cent. commercial collodion mixed with

500 c.cm. 2 per cent. collodion.
83 c.cm. alcohol, and
83 c.cm. ether.

the three part-negatives must not be weak or flat, but must be of good density and very clear.

Copying in direct sunlight gives specially brilliant pictures.

As a basis for the picture it is best to choose a white matt or brilliant Baryta paper, not too thickly coated. Many papers, especially those with a very strong layer of baryta, have the property that they are put out of shape by the various manipulations, and such papers are naturally useless as they prevent the images being correctly registered.

The black bottles contain the Leuko solutions.
The white bottles contain the necessary additions.
The bottles for blue, and additions for blue, are round.
The bottles for red, and additions for red, are square.
The bottles for yellow, and additions for yellow, are octagon shape.

(A weak coloring of the color solution mixed with collodion has no importance for the success of the picture.)

For use, take:—

50 c.cm. collodion 1.5 per cent.,
5 c.cm. Leuko solution, and
5 c.cm. of the particular additional solution.

Mix same in a dark room lighted by artificial light. Make only sufficient for what is required during the same day.

It must be observed that the blue collodion is not sensitive to dark blue, very sensitive to red, yellow and green light. The red collodion, on the other hand, is not sensitive to red light, little sensitive to dark blue, and very sensitive to green and yellow light. The yellow collodion in general is only sensitive to blue light.

I. PRODUCTION OF THE BLUE PRINTS.

Commence making the blue print by taking a piece of paper which is from 1.2 cm. larger than is required for the negative, and pour the blue collodion over it. The simplest plan is to turn up the edges of the paper about 5 mm. high, fix the paper with four pins on a piece of wood, pour the full quantity of collodion over it and drain, under a continual rocking, the remainder back into the bottle. Collodion which has already been used may be used again by the further addition of some alcohol and ether.

The preparation of the paper is made in a very weak artificial light.

To make a layer 10 by 13 cm. size (½ plate size), about 1.5 c.cm. collodion is used.

After the paper has been dried it is exposed under the red filter negative to daylight. When looking at the copy it is necessary to be very careful on account of the enormous light-sensitiveness of the paper.

The copying can be done very quickly, and with clear negatives and bright sunlight, 20–40 seconds are sufficient. It is recommended not to print the blue picture too deeply; with some experience one soon obtains the proper degree. The image is then fixed in the dark in 15 c.cm. fixing acid and 85 c.cm. water, and it is recommended to add to the fixing bath about 1 c.cm. of a 10 per cent. solution of sulphite of sodium. The bath, in consequence, remains clear for a longer time and can be used for fixing from 5 to 6 copies, 9 by 12 cm. (¼ plate) size. After fixing, wash for five or ten minutes, and dip the copy into the following chrome-gelatine solution:—

3 grams gelatine,
200 c.cm. water,
0.6 gram chrome alum (it is best to use basic chrome alum).

This solution must be made up fresh every day.

To dry, use clips for hanging up the copy. Then again dip into the chrome-gelatine solution. When hanging up, it must be observed, the edge of the copy (which was in the first instance on top) must now be hung downwards.

II. PRODUCTION OF THE RED PRINTS.

The dried copy, prepared with chrome gelatine, is now covered with red collodion in a light red light, and is dried in the dark.

Cover the blue print with the green, filter negative in such a manner that there is a perfect register. This work can be done by diffused daylight. Print until the red appears sufficiently vigorous* and fix for five minutes in the following solution:

15 c.cm. fixing acid,
85 c.cm. water.

The addition of sulphite is detrimental here.

The copy must be kept actively moving in the fixing bath. This bath is only used once. It is recommended, when printing, to cover the projecting edges of the print with small strips of paper in order to protect them from the light.

The fixed print is washed for about five to ten minutes in the same way as the blue print, and covered twice with chrome gelatine.

III. PRODUCTION OF THE YELLOW PRINT.

Pour over the dried blue-red print the yellow collodion in light-red daylight, or white artificial light, and expose to light under the blue filter negative.

Fix for five minutes the following:—

15 c.cm. fixing acid,
85 c.cm. water,
5 c.cm. sulphocyanide of ammonia, 1.5,
1 c.cm. sulphite solution, 1.10.

After fixing, the image is washed for five or ten minutes in distilled, or rain

* The red collodion copies take a longer time to copy than the blue collodion.

water, and is again dipped into the chrome gelatine and then dried. To protect the complete print against mechanical damage, it is best to cover it with a positive varnish.

We draw the attention of users to the fact that the concentrated fixing acid is very caustic, and that sensitive skins are irritated by the diluted fixing baths.

THE OFFICIAL METHOD OF ACTINICITY MEASUREMENT.

BY FRANK MORRIS STEADMAN.

THE official adoption of my method of measuring light by the Photographer's Association of America, at their recent Convention in St. Louis, October 3d to 8th, will make the following concise description of that system welcomed by all who are interested in photography.

That part of the resolutions which refer to the method and to the speeding of the emulsions is as follows:

"For the standard paper for the measurement of light intensity, we recommend solio and all printing-out papers which, on measurement, shall be found to agree with it in sensitiveness."

"For the standard amount of work that the light shall do we recommend that degree of discoloration which becomes first plainly distinguishable from the original color of the untinted paper. Such tint to be made through a hole in any thin opaque material, as the corner of a note-book, the cover being raised to observe the tint.

"For the scale of values we recommend the following as practicable: one-eighth, one-fourth, one-half, one, two, four, eight, sixteen, thirty-two seconds, one, two, four, etc., minutes. For greater accuracy the interval half way between any two of the scale may be used as three, six or twelve seconds. The shortest interval, one-eighth of a second, is the intensity of the light out-of-doors on a clear day with the sun from fifty to ninety degrees above the horizon, and no shorter or greater intensity therefore exists under ordinary, natural circumstances.

"Furthermore, as to Mr. Steadman's method of speeding plates, we recommend that the Association officially request each and all of the plate and film manufacturers of the United States to investigate the method with a view to establishing a uniform system, should the method be found practicable."

The photographer should be an adept at counting time. Without this ability there is always a feeling of inaccuracy. Practice the following method unless you already have one which is accurate. Arrange a note-book as described and without using the sensitive paper practice slipping a coin off and on the hole as the following word or phrase is spoken:

For a quarter second say "quar-ter."

For a half second say "naught-one-half."

For a second say "naught-one-half-and-one."

For any number of seconds say "naught-one-half-and-one, one-half-and-two, one-half-and-three, etc."

Practice until the hand will move exactly with the speech. Practice while looking at a watch and get the correct speed. Always use the method in all measuring of light and in making exposures. This is important. If it is neglected it will be at the expense of accuracy.

Become familiar with the "disappearing scale" of tints. To make this scale arrange the solio strip under the hole in the cover in the note-book as directed and cover it with a coin. Then stand close to a window or door and holding the book facing the sky outside, give sixteen seconds of exposure. Then move the slip along to a fresh place and give an exposure of eight seconds. Change again and give four seconds, etc., down to one-half second. Now examine the strip, and if the day has been at all bright several tints will be visible. Select the last one or the faintest visible one and the time required to make it will be the actinicity of the light in that position expressed in seconds according to the standard method.

Use this method of thinking of the intensity of the light. Any illumination is of a

certain intensity whether we measure it or not. We might as well *know* what that intensity is in numbers. The practiced photographer in the middle of the day need not make the measurement at every sitting, but he should have in mind the intensity of the light in seconds and should occasionally measure it so as to familiarize himself with the method of thinking. Then, if later in the day or if a cloud should come over the sun, a new measurement would reveal exactly how much weaker the light is and the relation of the exposure to the correct exposure in good light would be known. In this simple manner and without employing any method whatever the measurement of the light in seconds would be of great value to all photographers and especially to those who have not been in the business many years.

As to the out-of-door conditions. If the day is clear and the sun high the intensity of the light is practically one-eighth of a second. If the sun be about thirty degrees from the horizon or one-third of the way to zenith, the intensity is about one-quarter second. These conditions, therefore, never need be measured. By making the "disappearing scale" out-of-doors, when the sun is high, or by making exposures of one, one-half and one-quarter second it can be seen at a glance whether the quarter is the faintest or the second step of discoloration. If it is the faintest, then the quarter-second is the intensity. If it is sufficiently deep to be the second tint in the scale, then it would be known that one-eighth second would be the intensity, and this without really making that tint. This is known by being familiar with the "disappearing scale" of tints. Every photographer to be free in his work should understand for himself the reason for using a certain speed diaphragm to express the speed of a certain plate and subject. The following simple experiment will make this clear and the work is worth doing as the principal thing is to understand why certain things are true and not have to take for granted what some one else chooses to say about them.

Place a person of average complexion in your light as you usually work. Carefully take the measurement of the light at the position of the sitter's head, turning the solio, or other printing-out paper which tints as fast, directly towards the strongest light source. The number of seconds that first reveals a just plainly seen discoloration when you raise the cover of the notebook to look for it, is the intensity of the light expressed in seconds. Now make a number of exposures with different diaphragms, giving light intensity as the exposure each time. (If you have a multiplying camera so that you can make a number of exposures on one plate so much the better.) Then with normal developer at normal temperature develop the plate or plates together for a normal length of time, or to get a perfect negative from the exposure which seems in the developer to have been correctly exposed. Fix the plate or plates and examine, selecting the one which best suits your individual taste. The diaphragm which was used in making that particular exposure is called the *speed diaphragm* of the subject taken and is the one that will always make the same effect in the emulsion if you give the intensity of the light as the exposure and a like subject be photographed. Now construct your own speed list of subjects by calling that diaphragm the speed diaphragm for average complexioned portraits. The next smaller one will be the one for very fair, and the next larger for very dark complexions. But if in practice you generally use a certain diaphragm you can tell what part of the light intensity to give by knowing the relation of the diaphragm you used to the speed diaphragm of the subject that you are photographing. If the one you will use is two numbers larger than the speed diaphragm of your subject then the exposure will be one-fourth of the light intensity, if it is three numbers larger it will be one-eighth of the intensity, etc.

Any worker in the same manner can make a speed list for all the kinds of subjects that he photographs and the plates used will by no means be wasted as they will enable him to solve once for all the problem of exposure so that a plate need never afterwards be lost.

In this manner also the development of plates can be done with the greatest possible simplicity. This is so because a plate that is correctly exposed needs no modification in development. It is irrelevant to dis-

cuss whether it is possible to modify in the developer or not. It, at least, is unnecessary if the exposure has been correct. When the list of subject diaphragms shall be placed in every box of plates the worker will need only to look at it to see the diaphragm for the subject in hand that harmonizes with the light intensity exposure. If for your taste a modification is found necessary you can determine the diaphragm that best suits you at the first trial. If the result is overtimed according to your taste then place the speed diaphragm of that kind of subject at the next smaller or even perhaps two numbers smaller. Place it exactly where you want it to be so that the intensity exposure will suit *you*.

If these helps are taken advantage of not a plate need be lost by wrong exposure. I am pleased to say that two of the largest plate factories have already taken steps to include the system in their manuals and to publicly sanction the speed list that I hope to have ready for publication soon.

EXTRACTS FROM THE ASSOCIATION REVIEW.

J. H. GARO, speaking of the "Proper Treatment of Light in Photography," says:

"It is not necessary to enter into chemic disquisition upon the materials used in the art. To make a picture by the camera or by the brush, there are four essentials; namely, composition, design, drawing, and color light or values—whichever it may be called.

"In making a portrait or a group we have to adopt all four principles. While the painter uses exquisite and delicate colors to illustrate his sentiment, we have to depend on chiaroscuro—light and shade. While design and drawing give form, light creates space and body.

"The mysteries of value are brought forth by the magic touch of light. By its touch entire figures are detached from the background; by light and shade alone we are able to make a picture—"to be or not to be" dramatic or insipid.

"No rule of art is so little observed by the photographers as that which requires that the lights and shades of a picture be so arranged as to assist sentiment and be an echo to the sense.

"In making a portrait we have to give the most prominence to the head. To do so we have to emphasize it by light, and the rest of the figure should be subordinated. By this I do not mean left in an abyss of darkness, but less light used. The head must have three lights of different values and sizes, with one predominating light. The shoulders and the rest of the figure should come up to the head without being IT; then head and figure must be lighted by one commanding light which assists sentiment and gives expression.

"With perfect control of light, keen sense of the beautiful and artistic, there is nothing to prevent you from being a leader."

In "The Power of Mental Training," James W. Porter writes as follows:

"Through mental power and training, ugliness may be raised to sublimity, and even the revolting may be made to charm and fascinate.

"I plead for directness, for sincerity, for portraits of human interest. I do not pose my sitters. I merely try to correct the things that detract from my one compelling vision, for the beautiful and the truth, striving first for the form and character of the sitter's personality.

"I hold for a decorative quality, believing that every portrait or picture ought to be treated with artistic feeling, which gives it a charm indescribable. My surroundings *must* be in harmony with me, and I *must* be in harmony with my surroundings.

"The sittings I desire to make when I find the soul of the subject; and when I fail to find the soul, my portrait has lost its life quality, and the breath has gone out of it; the absence of things, which is seen in every portrait—that makes it good.

"If we would have interest, charm, fascination, give us pictures that play upon the imagination, and pictures that appeal to the best in mankind, the eternal quality in men, the something that lives.

"With us of the profession, let our aim be to do better things; let us work for a higher standard of excellence, and bring our art to the place where it belongs. As a very necessary step toward this attainment, let us train ourselves toward higher ideals in thought, by dwelling much upon the beauty in nature and in the arts, refraining from contact or thoughts of things that would tend toward dragging our ideals to baser standards.

"Our work will never show qualities of a high artistic feeling or inspire an idealistic sense of purity and beauty, unless we in turn have *that* within our own personality which will call it forth.

Elias Goldensky, referring to the Convention work, says, in part:

"As the main object of the National Association is to promote and develop the artistic merit of each and every one of its members, a high standard of excellence should be maintained in the exhibits which would be a source of instruction to all. Therefore, some form or system which would control the admission of pictures should be adopted.

"The little or big fellows should not only come to the convention to see the best work of the day, but steps should be taken by our executive board toward having instruction given in public session by some competent person who should analyze many pictures, which would, in their entirety, represent the various pictorial and technical excellence of the whole.

"This would result in educating the members, and by this method the general standing of the majority would be greatly improved."

Pirie Macdonald, speaking of "Awards," says:

"The notion that it is necessary to hang every exhibit presented has forced the average to a very low point, and the show, as a whole, has been interesting only from the necessity of searching in order to find the good things. Would it not be better to have a smaller number of the choicest productions—selected by a jury, of say two of the most cultured, recognized members of our craft, schooled, skilled portraitists, and one artist. Not a jack-of-all trades artist; not a landscape artist; not a chap who knows all about water color, and all about oil, and etches a bit, and putters about generally, with a distaste for hard work; who prefers 'grays' on the score of 'feeling,' and because they are so easy to make something of—anything of—or prints from cast-iron negatives because they are 'so simple,' but a sure enough, successful portrait painter—a man who gets two or three thousand for a portrait, and who is busy; who would expect a good fat fee for his trouble, and whose judgment would be worth money.

"Let these three men select the pictures, the examples that fitly represent portraiture, good portraiture, legitimate portraiture, and let the pictures so approved, and no others, be hung, and a certificate of acceptance be issued. Then, and then only, will Virtue and Reward be wedded."

EDITOR'S TABLE.

WE are in receipt from Mr. MILTON WAIDE of a grievous complaint regarding the manner in which his address at the recent convention was reported in the November issue of this MAGAZINE. We feel that a word of explanation is due our readers in this matter. It is an unwritten law with WILSON'S PHOTOGRAPHIC MAGAZINE that in the issue following the National Convention each year the full official report be published. In all cases where it is possible to do so and where addresses require it we have given the speaker an opportunity to revise the stenographer's notes. In the case in question this was impossible owing to the exigencies of publication and inability to get into touch with the author. In the nature of the report it was impossible to properly edit the copy without entirely rewriting it, which the editor did not feel at liberty to do. It was, therefore, published practically as reported by the official stenographer. If it is not as delivered the fault must lie at the door of the stenographer. It is manifestly a question between the gentleman who delivered the address and the stenographer who reported it. It is obviously one for which the editor of this MAGAZINE should not be held responsible. We cannot refrain from suggesting, however, that all addresses delivered before organizations of importance and intended for subsequent publication

ought, both in justice to the speaker and to the public, to be written beforehand. Thus, unpleasantnesses of this nature will be avoided and truthful records published of that which is said rather than of that which the speaker afterwards wishes he had said.

THE *Association Review* and program of the 24th Annual Convention of the Photographers' Association of America is a publication which deserves mention. As a piece of book-making it is most excellent and should stand as a monument not only to *Sparrell Print* from whose press it emanated, but especially to the Board of Officers of the Association who planned it. We believe chief credit is due to Mr. C. W. HEARN, First Vice-President, who has had all details of the brochure in immediate charge.

THE *American Annual of Photography* and *Photographic Times Bulletin Almanac* for 1905, edited by W. I. LINCOLN ADAMS and SPENCER B. HORD, is just received from the publishers, G. GENNERT, price in paper, 75 cents. This publication is the only American photographic annual published and ought to find a large sale. This volume contains a number of practical articles and a great variety of illustrations, both full pages and text embellishments. We hope to make further reference to it in a later issue.

TAYLOR, TAYLOR & HOBSON have just issued a very attractive 4-page circular on their new series II and IV *Cooke Anastigmats*, working at F/4.5 and F/5.6. These lenses are designed for high-speed photography, for the finest portraiture, and for those trying subjects on dull days, familiar to every advanced amateur and professional photographer.

It is scarcely two years since the opening of their New York office, yet in that time Cooke lenses have gained an unique position. Cooke anastigmats have been chosen by the best amateurs and professionals, by leading astronomers and by process-workers everywhere.

The advantages in construction are fully developed in the new series II and IV lenses. They invite fair comparison between these ultra-rapid Cooke lenses, and all others now on the market with the same focal length and aperature.

Circular on request.

BURKE & JAMES send us a very complete catalogue of stereopticons, magic lanterns, slides and enlarging lanterns particularly seasonable at this season of the year. Those who are interested in work of this kind will do well to address Department "G," Chicago or New York.

At the recent Convention held in St. Louis, the display made by The Rotograph Company, of New York City, was one of the best ever shown. The display was on their new Carbon Tissue Papers and upon Rotograph Bromide and Rotox, gas-light papers, in black and white and sepia colors. Few visited this display without a feeling of surprise at the progress made by this firm in the manufacture of artificial light printing papers. The Company's representatives distributed their Convention number of the *Photo Critic*, their house organ, which may be had by writing the New York office, 771 E. 164th St.

"IN Korea with the Kodak," reprinted from a recent number of *Collier's Weekly*, is published in pamphlet form by the Eastman Kodak Co., Rochester, N. Y. This publication is an interesting chapter from the war correspondence of ROBERT L. DUNN, of *Collier's* staff, and illustrates some of the difficulties of newspaper illustration with the camera. Copies will be mailed on application to the Eastman Co.

IN accordance with a rule instituted some years ago, The C. P. GOERZ Optical Works, in Berlin, have again this year given a week's holiday to all the workmen of their factories in Berlin and Winterstein, Germany, as well as the employees in the New York branch factory. The workshops in Germany were closed from September 5th to September 12th, and in New York from August 20th to August 27th. Taking in consideration that the firm is working overtime, with day- and night-shifts, the value of this concession to their workmen, who received full pay for the week of vacation, is all the better appreciated.

H. C. LAVETTE has just issued a "Question Book" with some answers tending to show why the LAVETTE Patent Mailing Envelopes are the best and least expensive in the market. The booklet is gotten up in very attractive style and is worth sending for.

We are in receipt from G. GENNERT, 24–26 E. 13th St., New York, and 23 E. Lake St., Chicago, of a new and very complete catalogue of photographic goods carried in stock by this enterprising firm. This catalogue contains 184 pages of well-illustrated and finely printed matter descriptive of photographic apparatus and supplies. It also contains a large number of half-tone illustrations of backgrounds and accessories.

THE exhibit of the G. CRAMER DRY PLATE CO. at the World's Fair, consisting of a large number of the finest photographs, and a number of exquisitely beautiful transparencies, all made by the foremost photographers and artists in this country on the famous CRAMER PLATE, was one of the most interesting of the photographic exhibits at the Fair.

The factory of G. CRAMER DRY PLATE CO. is located in St. Louis, and is one of the leading business institutions of the World's Fair City. In addition to its factory the CRAMER CO. has depots in New York, Chicago and San Francisco, in order to be able to better supply its many patrons in different parts of the United States as well as foreign countries.

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